C. P. U. No. 314

COMMITTEE ON PUBLIC UNDERTAKINGS
1975-76

(FIFTH LOK SABHA)

EIGHTY-EIGHTH REPORT

on

HINDUSTAN ZINC LIMITED

MINISTRY OF STEEL AND MINES

(DEPARTMENT OF MINES)

LOK SABHA SECRETARIAT
NEW DELHI

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(1975-76)

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*22. Pandit Bhawani Prasad Tiwary.

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Shri M. A. Soundarajan—*Chief Financial Committee Officer*

Shri K. S. Bhalla—*Senior Financial Committee Officer.*

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*Ceased to be a member of the Committee consequent on his retirement from Rajya Sabha.

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1. Shri Damodar Pandey—*Convener*
2. Shri Ram Surat Prasad—*Alternate Convener*
*3. Shri Jagdish Prasad Mathur
4. Shri K. Narayana Rao
5. Shri Paokai Haokip
6. Shri Sultan Singh
7. Shrimati Sheila Kaul

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* Ceased to be a member of the Committee consequent on his retirement from Rajya Sabha.

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report, on their behalf, present this Eighty-eighth Report on Hindustan Zinc Ltd.

2. This Report of the Committee is based on the comprehensive appraisal of the working of the Hindustan Zinc Ltd. as contained in the Report of the Comptroller and Auditor General of India for the year 1974—Union Government (Commercial)—Part III and also of an examination in depth of the working of Hindustan Zinc Ltd. upto the year ending 31st March, 1975.

3. The Committee took the evidence of the representatives of Hindustan Zinc Ltd. on the 12th and 13th November, 1975 and of the Ministry of Steel and Mines (Department of Mines) on the 26th December, 1975.

4. The Committee considered and adopted the Report at their sitting held on the 15th April, 1976.

5. The Committee wish to express their thanks to the Ministry of Steel and Mines (Department of Mines) and the Hindustan Zinc Ltd. for placing before them the material and information they wanted in connection with the examination of Hindustan Zinc Ltd. They wish to thank in particular the representatives of the Ministry and the Undertaking who gave evidence and placed their considered views before the Committee.

6. The Committee also place on record their appreciation of the assistance rendered to them by the Comptroller and Auditor General of India in connection with the examination of Hindustan Zinc Ltd.

NAWAL KISHORE SHARMA,
Chairman,
Committee on Public Undertakings.

April 26, 1976.
Vaisakha 6, 1898 (*S*).

I

INTRODUCTORY

A. Historical Background

1.1. The history of lead exploitation dates back to 1941 when the Eastern Smelting and Refining Company Private Limited, Calcutta was formed and started operations on a small lead deposit at Chowth-Ka-Barwara near Sawaimadhopur. By 1942-43, the Company set up a small pilot lead smelting plant at Tundoo near Dhanbad in Bihar. In 1942 the Geological Survey of India took on lease a wide area and started developing the Zawar Mines in Rajasthan. In 1944 the Metal Corporation of India (hereinafter referred to as M.C.I.), a Public Limited Company, having its registered office in Calcutta was formed and all the assets of the Eastern Smelting and Refining Company were transferred to the MCI. In 1945 when Government of India surrendered the mining rights over Zawar to Mewar Durbar, the MCI approached the Mewar Durbar and obtained a prospecting license over Zawar for two years and subsequently in 1950 obtained a mining lease. In 1950, the MCI also obtained a loan of Rs. 30 lakhs from the Industrial Finance Corporation. After taking the lease of the Zawar Mines, two blast furnaces and few sintering posts were added by the MCI to the lead smelter at Tundoo. Till 1950, when the ore dressing plant at Zawar was commissioned, handdressed lead ore was being sent to Tundoo for production of lead. While the lead concentrates were being sent thereafter to Tundoo for production of lead, the MCI started sending zinc concentrates to Japan from 1953 for being brought back after conversion into zinc metal.

1.2. In January, 1960 the MCI obtaind a licence for establishing a 15,000 tonnes per annum zinc smelter at Udaipur with facilities for production of sulphuric acid (25,000 tonnes per annum) to be utilised for production of single superphosphate and cadmium (70 tonnes per annum) as by-products. A separate licence for production of 9,000 tonnes of lead and 5,40,000 ozs. of silver per annum was also obtained by the MCI in June, 1960. The above capacities for production of zinc and lead were later revised to 18,000 tonnes and 11,000 tonnes respectively per annum with corresponding increases in the capacity for by-products. The total financial requirement for the project was initially estimated in 1960 by the MCI at Rs. 6.70 crores which was proposed to be met by issue of additional share capital and loans including a loan of Rs. 100 lakhs from the Industrial Finance Corporation. The Industrial Finance Corporation sanctioned a loan of Rs. 100 lakhs (against which Rs. 75 lakhs were disbursed) and also guaranteed the deferred payment loan arranged from France for import of plant and machinery etc. valued at about Rs. 450 lakhs (against a counter-guarantee from Rajasthan Government). The MCI took up the above project with the help of M|s. Krebs and M|s. Penarroya of Paris. As, however, by 1963, the estimated cost of the project had considerably gone up to Rs. 12.63 crores (*i.e.* an additional requirement of about Rs. 5.93 crores), the MCI proposed to finance it by a loan of Rs. 3 crores, additional equity issue of Rs. 1 crore and balance from internal resources. For the loan, the MCI approached different institutions/organisations. In August, 1963, Rajasthan Government brought to the notice of Government of India the financial difficulties of the MCI. In November, 1963, the Industrial Finance Corporation reported the lack of financial resources of the MCI and the disturbing conditions of the Zinc Smelter Project. In March, 1964, a committee headed by the Director General of Technical Development came to the conclusion that the project would not be viable based on the then ruling prices of zinc and lead in the international market and that the MCI would not be able to meet its financial obligations. The matter was then examined by the Government of India and a series of discussions and negotiations were held with the MCI in May-August, 1964.

1.3. Considering the importance of zinc and lead metals to the economic and strategic needs of the country, and the difficulties of the Metal Corporation of India, to proceed with their project for the development of zinc-lead deposits at Zawar in Rajasthan and the construction of a zinc smelter of 18,000 tonnes capacity per annum near Udaipur, Government of Inda decided on 7th October, 1965 to acquire the undertaking of the MCI with a view to exploit the zinc-lead deposits to the fullest extent and to expedite completion of the zinc smelter. Accordingly, the undertaking of the MCI was aquired by Government with effect from 22nd October 1965 by virtue of the Metal Corporation of India (Acquisition of Undertaking) Ordinance, 1965. The undertaking was managed by an Administrator appointed by Government till the incorporation of the Hindustan Zinc Limited (hereafter referred to as the Company) as a wholly owned Government Company on 10th January, 1966. On the formation of the Hindustan Zinc Ltd., all the properties, assets liabilities and obligations of the MCI acquired by Government of India stood transferred to the Hindustan Zinc Limited from the date of acquisition of the undertaking.

B. Compensation to Metal Corporation of India

1.4. The Ordinance of October, 1965 by virtue of which the Undertaking of MCI was acquired by Government was replaced by the MCI (Acquisition of Undertaking) Act, 1965 enacted by the Parliament in December, 1965. The validity of the Act was challenged by the MCI in the Punjab High Court which declared (March, 1966) it to be in violation of Article 31(2) of the Constitution on the ground that the principles enunciated therein for the determination of compensation in respect of plant and equipment in use did not ensure to the MCI the just equivalent of the properties acquired. The judgement of the Punjab High Court was upheld by the Supreme Court in September, 1966. Thereupon, Government promulgated (13th September, 1966) the Metal Corporation of India (Acquisition of Undertaking) Act of 1966 as an ordinance which was subsequently enacted by the Parliament in December, 1966 giving retrospective effect to the acquisition of the undertaking with effect from 22nd October, 1965.

1.5. The Act provided for payment of compensation to the MCI for acquisition of the undertaking and determination of the quantum of compensation in accordance with the principles laid down in the Act. It also stipulated that in the event of dis-agreement between the Government and the MCI, the matter would be referred to a tribunal to be constituted within 3 months from the date on which the two parties failed to reach agreement. In accordance with the Act, the compensation to be paid by the Central Government to the MCI shall be an amount equal to the sum total of the value of the properties and assets of the MCI as on 22nd October, 1965 calculated in accordance with the provision of the Act less the sum total of the liabilities and obligations of the MCI as on that date calculated in accordance with the Act together with interest on such amount from 22nd October, 1965 to the date of promulgation of the Ordinance *i.e.,* 13th September, 1966. The amount of compensation is required to be paid in cash within six months of the date of its determination, failing which interest is payable at 4 per cent per annum. Under the Act the Metal Corporation of India (MCI) was required to furnish a complete inventory of its properties and assets and liabilities and obligations at the commencement of the Act within a period to be specified by the Government. On 10th October, 1966, Government requested the MCI to furnish the inventory by 31st October, 1966, later on extended to end of January, 1967 at the request of the MCI. Under the Act some of the assets by the MCI were to be valued at market value at the commencement of the Act. The Government also asked the Hindustan Zinc Ltd., in November, 1966 to take up the valuation of assets etc., so as to determine the amount of compensation payable to the MCI. No inventory was, however, furnished by the MCI. A valuation team of the Hindustan Zinc Ltd. assessed (May, 1967) the net excess of assets over liabilities at Rs. 185.46 lakhs. On 16th January, 1968, Government decided that the Financial Adviser and Chief Accounts Officer of the Company and the Financial Adviser of the Ministry of Finance should evaluate the assets and liabilities of the undertaking on the basis of which an offer could be made to MCI. In April, 1968 these officers assessed the compensation at Rs. 211.69 lakhs and the MCI was requested in June, 1968 to intimate whether the same was acceptable to them. For the purpose of its first annual accounts for the period ending 31st March, 1967, the Company adopted Rs. 211.69 lakhs as the net excess of assets over liabilities taken over on the basis of figures adopted in arriving at the amount of compensation considered reasonable by Government and quoted to the MCI. No letter of acceptance was received from MCI and the offer was withdrawn by Government in March, 1969.

1.6. A revised offer of Rs. 189 lakhs was made by Government in April, 1971 to the MCI for acceptance within 21 days failing which it was to be presumed that it was not acceptable and, therefore, required reference to a tribunal. On 10th May, 1971 the MCI contended that the offer was unilateral and the Government had not attempted to comply with Section 10(1) of the Act in taking steps to determine compensation by an agreement. The contention of the MCI was rejected on 8th July, 1971 by Government who informed the former that, if they were unable to accept the offer within four weeks of the receipt of the letter, action would be takn to refer the matter to the tribunal. On 10th August, 1971 the MCI informed that a meeting of the Board of Directors had been called to consider the matter in all its aspects and its decision would be intimated in the course of next fortnight or so. No further intimation was received from the MCI. Instead, Government received notice of a writ petition having been filed on 15th September, 1971 in the Calcutta High Court by certain shareholders of the MCI. No agreement having been possible regarding the amount of compensation a one man tribunal was constituted on 29th November, 1971. The tribunal was expected to submit its report within a period of not later than 8 months. On 4th January, 1972, the petitioners sought to bring in a motion for injunction against the proceedings being taken up by the Tribunal. The court ordered the petition in regard to the appointment of the Tribunal to be heard along with the main writ petition. The writ petition was withdrawn by the shareholders of MCI on 11th July, 1972 and the Tribunal commenced its proceedings in September, 1972.

1.7. The date for submission of the report by the tribunal was initially extended by Government up to 31st December, 1973 and later on in two spells to 31st December, 1975.

1.8. The Ministry have now stated that the time limit for giving the award of the Tribunal has been further extended upto 28-2-77.

1.9. The Committee enquired about the reasons for delay on the part of the Tribunal in submitting the Report. The Ministry stated, "the tribunal called upon the Metal Corporation of India to file its claims, MCI, however, desired inspection of documents before filing its claim, which stand was objected to by the Counsel on behalf of Government. There were protracted arguments on the procedural formalities till, finally, the MCI filed its claim only in April, 1974 for a sum of Rs. 101.80 crores towards compensation.

1.10. The Government filed its written reply in September, 1974 and the MCI its rejoinder thereto in November, 1974. Since then the Government Counsel has been pressing the Tribunal to frame the issues; the same have not been framed so far by the Tribunal.

1.11. In the meanwhile, by an order dated 14-8-1975 the Tribunal directed the Government to advance a sum of Rs. 1 lakh to the MCI to enable MCI to meet its expenses in presenting its case before the Tribunal. As the Metal Corporation of India (Acquisition of Undertaking) Act, 1966 envisaged payment of a single amount of compensation, and did not provide for payment of part compensation or any advance, this order of the Tribunal was to be challenged by the Government in the Delhi High Court by a Civil Writ Petition. No date for hearing of the case has yet been fixed by the High Court.

1.12. It is understood that the MCI has, in the meanwhile, filed another writ petition before the Delhi High Court praying that the Court may direct Government to pay the admitted amount of compensation (*viz.*, Rs. 1.98 crores).

1.13. The Committee note that the Metal Corporation of India, a public limited company was acquired by the Government of India under the Metal Corporation of India (Acquisition of Undertaking) Act of 1966, and a Tribunal was appointed in November, 1971 to determine the amount of compensation payable to the Corporation because of a disagreement between the Government of India and the Corporation on the amount of Rs. 1.98 crores offered as compensation by the Government of India. Though the Tribunal was required to submit the report within a period of 8 months it was only in April, 1974, after about 3 years, that the Metal Corporation finally filed its claim of Rs. 101.80 crores towards compensation with the result that the date for submission of the report was extended first up to December, 1973 and later up to December, 1975. It has been now further extended to 28th February, 1977. Too long a time has been taken in coming to any final decision in regard to the amount of compensation to be paid.

1.14. The Committee note that according to Section 11(4) of the Metal Corporation of India (Acquisition of Undertaking) Act, 1966, the one-man Tribunal which is considering the question of the amount of compensation payable to the Metal Corporation of India

has the power to regulate its own procedure and decide all matters within its competence and may review any of its decisions in the event of there being a mistake etc., but subject thereto "the decision of the tribunal on any matter within its jurisdiction shall be final and conclusive."

1.15. The Committee feel that when a private enterprise is acquired in Public interest it may be more appropriate if the amount payable in such cases is mentioned specifically in the legislation itself, particularly in those cases where the amount is likely to be huge. The Committee feel that Government should lay down norms for fixing the amount to be paid at the time of take over. The Committee would like the Government to examine the question of paying an amount which may not be more than the book value of the assets less the liabilities of the unit at the time of taking over.

C. Objectives

1.16. The main objects of the Hindustan Zinc Ltd., are:—

(i) To own and manage the undertaking of the MCI acquired by the Central Government by special legislation in 1965;

(ii) To carry on trade or business of metallurgists and miners including beneficiation of minerals, mineral dressing, concentration, smelting, refining extraction, manufacture and fabrication, purchase and sale of ores, concentrates and metals of zinc and lead in particular and their By-products of all kinds;

(iii) To explore, exploit and beneficiate minerals; and

(iv) To undertake research in fields of mining, metallurgy and engineering aspects of the lead, zinc and allied activities of the Company.

II

INTEGRATED SCHEME

2.1. At the time the MCI was acquired by the Government of India, it had a mining capacity of about 500 tonnes of ore per day and milling capacity (in two ball mills) of 475 tonnes per day. The integrated scheme prepared by the MCI in 1960 contemplated development of mining and milling capacity from 500 tonnes per day to 2000 tonnes per day, setting up of a zinc smelter of 18000 tonnes of zinc ingots, besides production of 29000 tonnes of sulphuric acid, 75000 tonnes of single superphosphate and 80 tonnes of cadmium per annum. Prior to take over of the undertaking by Government, about 75 per cent of the work of Zinc smelter was reported to have been completed; further work was reported to have ceased some time in 1964 or early 1965, as the MCI was not in a position to finance it. For expansion of mining and milling capacity equipment worth Rs. 80 lakhs, out of the total estimated value of Rs. 415 lakhs, had been received but was lying at the Bombay port due to inability of the MCI to pay the customs duty. In addition, at the time of taking over, the lead smelter at Tundoo was expected to produce 3,600 tonnes of lead and 5000 kgs. of silver as by-product per annum.

2.2. Hindustan Zinc Ltd., modified the scheme in which new areas of development were also included.

2.3. The following major items of works have been undertaken by the Hindustan Zinc Ltd., in connection with the integrated scheme.

(i) *Mines and Mill Development*

(a) Sinking and Lining of Shaft and development of mines.

(b) Installation of 500 tonnes Ball Mill

(c) Installation of 2,000 tonnes mills

(d) Renovation including provision for additional facilities for the existing (475 tonnes plus 500 tonnes) Ball Mills.

(e) Construction of Tidi Dam

(ii) *Erection of Zinc Smelter*

A. Estimates of the Integrated Scheme

(i) *Revision of Estimates*

2.4. The integrated scheme prepared by the MCI in 1960 was estimated to cost Rs. 670.35 lakhs, later on revised by them to Rs. 1,263 lakhs in early 1964. At the time of acquisition of the undertaking by Government, it was roughly estimated by Government that besides the compensation payable to the MCI, an additional investment of Rs. 350 lakhs would be required to complete the project. The estimated cost of the project was reassessed by HZL in November, 1966 at Rs. 1,664.47 lakhs and was further revised to Rs. 1,896.61 lakhs in October, 1969.

2.5. The table below indicates the comparative position of estimates made in November, 1966, their further revision and the actual expenditure incurred till 31st March, 1975:—

(Rupees in lakhs)

	Estimates of November, 1966	Revised estimates of October, 1969	Value of assets taken over in 1965 as roughly estimated by Government	Revised estimates (October, 1969) exclusive of the value of assets taken over (Col. 3-4)	Estimates sanctioned by Govt. (August, 1970) exclusive of the value of assets taken over	Expenditure upto 31-3-75 (excluding the value of assets taken over in 1965)
1	2	3	4	5	6	
Expansion of Zawar Mines and Mill Development to 2000 MT per day	702·47 (278·00)	983·80* (278·00)	279·78 (193·00)	704·78 (85·00)	634·02** (85·00)	699·85 (84·64)
Zinc Smelter to produce 18000 Mt. per annum	962·00 (398·00)	890·71 (398·00)	583·91 (263·20)	306·80 (134·80)	306·80 (134·80)	243·66 (134·80)
Tundoo Lead Smelter, Calcutta Office and Head Office . .	..	22·10	15·70	6·40	6·40	7·87
TOTAL . . .	1,664·47	1,896·61	879·39	1,017·22	947·22	951·38

NOTES: 1. *Provides for mill capacity of 2975 tonnes of ore per day (475 tonnes at the time of take over and 2500 tonnes to be installed after acquisition) as against 2000 tonnes per day envisaged in earlier estimates.

2. **Difference of Rs. 70 lakhs between the revised estimates (Col. 5) and the sanctioned cost (Col. 6) represent the notional replacement value of the initially inherited milling capacity of 500 tonnes per day to be met out of depreciation accruals.

3. Figures in brackets indicate foreign exchange component.

2.6. While revising the estimates in October, 1969, the Company re-arranged|re-grouped the various heads of expenditure in order to rationalise the existing headings in the estimates and to cover new areas of investment. As a result, it is not possible to co-relate the estimates of November, 1966 with the revised estimates of October, 1969 so as to ascertain the reasons for increase in expenditure under the different heads. However, the increase of Rs. 633 lakhs in the estimates of October, 1969 over and above the MCI estimates of Rs. 1,263 lakhs has been attributed by the Management mainly to (i) the provision of additional milling capacity of 1,000 tonnes of ore per day, (ii) devaluation of the rupee (iii) increase in the estimated value of assets taken over from MCI (iv) construction of Tidi dam and residential houses at Zinc Smelter and Zawar Mines, (v) increase in the customs and other statutory duties, administrative and overhead charges, (vi) additional cost of shaft sinking civil works, equipment etc. and (vii) additional payments to French Consultants.

2.7. The Committee note that the estimate of the integrated scheme which was originally revised from Rs. 670 lakhs (1960) to Rs. 1263 lakhs in 1964 was after take over by HZL reassessed at Rs. 1664 lakhs in November, 1966 and further revised to Rs. 1896 lakhs in October, 1969. The Committee also note that while revising the estimates in October, 1969 the undertaking rearranged and re-grouped the various heads of expenditure to rationalise the existing sub-heads of estimate and to cover new areas of investment with the result that a comparison with the earlier revised estimate of 1966 to ascertain the reasons for increase in expenses under different heads was not possible. The Committee feel that the revision made in 1966 by HZL could have been completed in all respects if only the management had been vigilant and taken care to include any new items which were covered later. In the opinion of the Committee this laxity on the part of Management has not only resulted in escalation in cost but also delayed the implementation of the project.

2.8. The Committee also feel that while revising the estimates in October, 1969 Government should have critically gone into the reasons for revision or increases under each one of the sub-heads to make sure that such increases/revision were justified and the items newly included could not have been foreseen earlier. The Committee expect that at least in future the Government would ensure that once

the estimates are revised they are realistic and that there would be no further revision.

(ii) *Approval of Estimates*

2.9. Government sanctioned an estimate of Rs. 947.22 lakhs in August, 1970 exclusive of the value of assets taken over. The scheme was completed in April, 1973. As against the sanctioned estimate, the actual expenditure incurred on the scheme is stated to be Rs. 951.38 lakhs. The revised estimates of the integrated scheme have, however, been finally approved by Government on 10th October 1975. Though no further expenditure is expected to be incurred for the completion of the Project, the estimates have not been closed so far.

2.10. In this connection the Management stated that,

> "the expenditure on integrated scheme, relates to total revised estimates of the scheme including the value of assets taken from MCI. Since the total estimates will require to be suitably changed following the award of the Tribunal on the compensation payable to MCI, the estimates have not been closed so far."

2.11. The Committee find that Government sanctioned an estimate of Rs. 947.22 lakhs in August, 1970 for the integrated scheme exclusive of the value of assets taken over from MCI. The actual expenditure on the scheme to end of March, 1975, however, amounted to Rs. 951.38 lakhs exclusive of the value of assets taken over. The Committee regret to note that although the integrated scheme is stated to have been completed as far back as April, 1973, the revised project estimate was approved by Government only in October, 1975 i.e. after more than two years of completion of the project.

2.12. The Committee do not see any justification for the delay of over 2 years in the sanction of revised estimates even after completion of the project. The Committee feel that revised estimate should not serve the purpose of a completion report of the project but should be prepared as soon as excesses are anticipated under any or different heads of the project or when there is a material deviation from the original project estimate so that it may serve as an instrument for financial control and should not be taken up/sanctioned after the completion of the project and thus become a fait accompli. They recommend that the reasons for delay in approval of the final estimate should be investigated in order to pinpoint lapses, if any, and avoid recurrence in future.

2.13. In the opinion of the Committee it is not correct that approval of the revised estimate or closure of the estimate should await the award of Tribunal. Any change in the capital cost on account of the decision of the tribunal should be suitably explained in the final completion report of the project.

B. Delay in completion and commissioning

2.14. The scheduled dates and the actual dates of completion of the items of works forming part of the integrated scheme are given in the table below:—

	Scheduled date of completion	Actual date of completion
(i) *Mines and Mill development*		
(a) Sinking and lining of shaft and mine development	To be completed according to a time schedule to be attached with the contract	May, 1972
(b) Installation of 500 tonnes Ball Mills	September, 1966	September, 1966 (commissioned in December, 1967)
(c) Installation of 2000 tonnes Mill	October, 1971	April, 1973
(d) Renovation of existing Ball Mill	December, 1970	August, 1971
(e) Construction of dam over river Tidi	June, 1970 (partial) June, 1971 (complete)	Completed by State Government of Rajasthan in June 1973 upto a height of 1376 ft. (MSL).
(ii) *Zinc Smelter*		
Erection (residual work)	November, 1966	January, 1968 (partila production) June, 1968 (full production).

2.15. The reasons for the delay in the completion and commissioning of the above projects and the implications of delay have been discussed in the subsequent sections.

C. Sinking and lining of shaft and Development of Mines

(i) *Estimates*

2.16. The contract for sinking a shaft of approximately 302 metres in depth was awarded by MCI to M/s. Cementation Company at a cost of Rs. 18.50 lakhs in December, 1961. After sinking the shaft up to 232 metres, the firm suspended the work in August, 1964 due to the breakdown of their winder motor and did not start it again as a sum of Rs. 10 lakhs due to them had not been paid by the MCI till the acquisition of the undertaking by Government. A fresh contract was, therefore, entered into with the firm (on the basis of fresh quotation from them and after further negotiations) by the HZL in September, 1966 for shaft sinking up to 321 metres at an estimated cost of Rs. 40.62 lakhs.

2.17. In regard to the revision of estimates from Rs. 18.50 lakhs to Rs. 40.62 lakhs the Chairman, HZL stated during evidence as follows:—

> "It is more complicated to start an abandoned shaft than sinking a new shaft. Any way there was no possibility of sinking a new shaft. Apart from that, Hindustan Zinc Ltd. had not realised that far more work had to be done. They increased the scope of the work already, that is shaft sinking plus some developmental work. All this work was given to the contractor."

(ii) *Further revision of the estimates*

2.18. The value of the contract was revised to Rs. 78.83 lakhs in July, 1971 on account of the following reasons:—

(1) The cost of certain items totalling Rs. 39.07 lakhs was revised to Rs. 50.44 lakhs mainly because the quantities had not been accurately estimated on the basis of the particulars given in the drawings. The estimate of Rs. 40.62 lakhs included an *ad hoc* provision of Rs. 1.55 lakhs for certain items in respect of which quantities had not been stipulated in the contract. This was revised to Rs. 19.14 lakhs after indicating the quantities.

(2) Provision of extra items of work within the scope of the contract valuing Rs. 1.44 lakhs.

(3) Provision of extra items of work outside the scope of the contract valuing Rs. 7.81 lakhs.

2.19. The Committee enquired about the reasons for incorrect estimation of quantities given in the contract for certain items and why the quantities for certain other items for which *ad hoc* provision was made could not be stipulated in the contract. The Chairman, HZL, stated during evidence as follows:—

> "The original estimate and detailed engineering work was done by the French consultants at the time of Metal Cor-

poration of India. They had worked out fairly detailed estimates, but even then they had quite clearly said that there would be a gap where the estimates would be specified only in rates and not quantities. On that basis the first agreement was signed by the Metal Corporation with Cementation and when we took over, we made marginal adjustments in the agreement accepting that clause because it is not possible, for example, to project ahead how much concreting would be required to support bad strata. So, when strata conditions were found to be bad, the rates were paid when they were asked to concrete. This kind of provision was maintained."

2.20. In regard to the provision of extra items of work outside the scope of the contract valuing Rs. 7.81 lakhs, the Management stated as follows:—

"In anticipation of Hindustan Zinc Ltd. receiving its own machinery and equipment, it had been decided at the time of signing the contract to undertake these works departmentally. As these equipments, which included complete sinking machinery including Headgears were not available in time to Hindustan Zinc Ltd. due to several reasons, it was considered expedient to get these jobs done by Cementation with the help of their machinery. The rates for these jobs were worked out after negotiations on the basis of rates for similar items of work provided in the contract and considered reasonable. It was not advisable to postpone these works to wait for departmental equipment to arrive as in many cases, considerable amount of duplication and extra cost would be involved."

(iii) *Actual Expenditure*

2.21. The Company approached the Ministry in August, 1971 for the approval of increase in contract value from Rs. 40.62 lakhs to Rs. 78.83 lakhs. However, the total expenditure incurred on the work as a whole, major portion of which had been completed by October, 1971, amounted to Rs. 114.84 lakhs (including a payment of Rs. 72.82 lakhs to M/s. Cementation Company) against the sanctioned estimate of Rs. 73.72 lakhs.

2.22. Asked about the reasons for increase in the estimated cost of work from Rs. 73.72 lakhs to 114.84 lakhs, the Management stated as follows:—

> "The original estimate of Rs. 73.72 lakhs consisted of the following:—
>
> | | | |
> |---|---|---|
> | a. | Rs. 40·62 lakhs | — For shaft sinking and mine development awarded on contract to Cementation. |
> | b. | Rs. 33·10 lakhs | — Payment for Plant and machinery connected with winding installations. |
>
> The revised figure of Rs. 114.84 lakhs is also broken down below:—
>
> Against Rs. 40.62 lakhs, expenditure on Shaft sinking work alone is Rs. 76.16 lakhs. The balance of Rs. 38.68 lakhs represents the value of machinery revised from Rs. 33.10 lakhs."

2.23. The break-up of increase in estimates of Plant and Machinery for winding installation is stated to be as follows:—

(1)	Re-import of Control-Panels and other accessories (burnt in transit)	—Rs. 2.67 lakhs
(2)	Replacement of items lost in transit. (Plate link, Tension Rods guide plate springs etc.)	—Rs. 0·20 lakhs
(3)	Rehabilitation and repair cost	—Rs. 2·71 lakhs
		—Rs. 5·58 lakhs

(iv) *Approval of the Estimates*

2.24. The Ministry stated in April, 1975 that the cost of shaft sinking and furnishing was revised to Rs. 114.84 lakhs by the Company in October, 1971, and the case was examined in consultation with the Technical Division of the Ministry. It was decided that there was a justification for increase in the cost estimates. It was further decided in October, 1973 that approval for the revised estimates for shaft sinking should be considered along with the revised project estimate for the integrated scheme for which estimate of Rs. 9.47 crores had been sanctioned in August, 1970.

2.25. The Committee enquired if it was correct to defer the approval of revised estimates for a particular item of work till the revised estimates for the scheme as a whole was taken up for consideration. The Management stated that according to the practice followed, the revision of estimates was taken up on the basis of the whole project/scheme as different authorities were empowered to approve the revised estimates based on increase of cost of the whole project. The revised cost estimates of the whole project have since been sanctioned on 10th October, 1975.

2.26. The Committee find that after the HZL had taken over the MCI fresh contract was entered into with M/s. Cementation (a private company) in September, 1966 for shaft sinking upto 321 metres for an estimated cost of Rs. 40.62 lakhs. The value of the contract was revised to Rs. 78.83 lakhs in July, 1971 mainly because the quantities for certain items had not been accurately estimated earlier and because the expenditure on certain other items for which an *ad hoc* provision had been stipulated in the contract had increased. The HZL approached the Ministry in August, 1971 for approval of increase in contract value.

2.27. The Committee also note that against the original sanctioned estimate of Rs. 73-72 lakhs which included Rs. 40.62 lakhs for shaft sinking, the total expenditure on the work as a whole amounted to Rs. 114.84 lakhs. Accordingly the estimate for shaft sinking and furnishing was revised to Rs. 114.84 lakhs in October, 1971 when a major part of the work was completed. The revised estimate included an expenditure of Rs. 76.16 lakhs for shaft sinking work as against the original estimate provision of Rs. 40.62 lakhs.

2.28. The Committee regret to note that though the Ministry were satisfied about the justification for increase in cost estimates, they did not sanction the revised estimate but decided in October, 1973, after a lapse of 2 years that the revised estimate would be considered along with the revised project estimates for the integrated scheme. The Committee are informed that the revised estimate for the whole project was sanctioned only in October, 1975, after a further delay of two more years. The Committee feel that Government should not have deferred the approval of the estimates/sub-estimates of the work till the consideration of the scheme estimate as a whole. The Committee have already commented about the approval of the estimates by Government long after the completion of the projects.

(iv) *Delay in completion of work*

2.29. The contract stipulated the completion of work according to the construction programme. A time schedule for the entire contract was prepared in October, 1966 by M|s. Cementation Company according to which the work was expected to be completed by March, 1970. This time schedule was, however, not accepted by the HZL as according to the Ministry (May, 1975), "any commitment by HZL with regard to its capability to supply drawings, machinery and steel was not possible at that time." It was also stated by the Ministry that the main shaft was sunk and completed in October, 1967 and the execution of the remaining work was dependent upon the Company's organisational strength and availability of machinery, steel, etc. When all these were tied up, a firm programme was drawn up in 1970; the intervening period from October, 1967 onwards was used by the contractor to execute the work, as and when released, without any long base perspective projection. The work was actually completed by the contractor in May, 1972.

2.30. Asked about the reasons for a delay of about two years in the completion of work according to the time schedule prepared in October, 1966 and that proposed in 1970, the Management stated as follows:—

> "A work of this nature involved salvaging of abandoned work and, therefore, the corresponding contract could not be given a rigid time dimension. This was why a provision was made in the contract that a schedule of construction, in execution of the contract would be prepared from time to time. Such a schedule was made in October, 1966, but it envisaged fulfilling of certain contractual obligations by Hindustan Zinc Ltd. by way of supply of drawings, steel and machinery in a sequential flow. For factors beyond the control of Hindustan Zinc Ltd., this contractual obligation of Hindustan Zine Ltd. could not be fulfilled. the time schedule became meaningless. The broad reasons were:
>
> (i) Headgear was designed by Venot Pic on the basis of steel sections available in 1962-63. While procuring the steel sections according to the material list of Venot Pic it was found that some of the sections were not available in the market due to rationalisation of rolling which took place in the steel plant. This necessitated modification of some components of headgear for which the services of Triveni Structurals were availed, who modified drawings to accommodate alternate sections. The procurement was accordingly arranged and the headgear was completed.
>
> (ii) Some of the winding equipment lying at Bombay dock got damaged due to long storage and exposure to weather.

(iii) One wagon caught fire while in transit from Bombay to Zawar resulting in complete burning of two control panels and damage to winding drum and gear, control panels were again imported from France and other equipments were reconditioned indigenously.

(iv) Important items for commissioning winder were lost during transit and these had to be procured afresh from indigenous sources, the delivery of which was very much delayed.

(v) There was a general shortage of detonators in the country and specially those with long lead required for shaft sinking and inset work."

2.31. The Committee feel that since HZL was not unaware of the work already done and the nature of work remaining to be completed, it should have been possible for HZL to tie up the organisational arrangements, procurement of materials etc. well in time and fixed a realistic and firm schedule for completion of the work in the contract instead of having a vague stipulation that a time schedule would be prepared from time to time. The Committee regret to note that even after a schedule was prepared it could not be adhered to and there was a delay of 2 years in the completion of the work. The Committee recommend that the reasons for delay in the completion of work should be investigated in order to find out the extent to which each of the factors contributing to delay could have been avoided with proper planning and foresight.

D. Installation of 500 tonnes mill

2.32. In order to increase the milling capacity to 1,000 tonnes per day under their short term scheme, the MCI had placed orders for import of a 500 tonnes ball mill from USA in September, 1962. The Mill was got released by the Company in May/June, 1966 from the Bombay Port where it was lying for quite some time due to inability of the MCI to pay customs duty.

2.33. Although the installation as well as the trail run of the 500 tonnes ball mill were completed in September, 1966, it was not commissioned till December, 1967 on account of inadequate supply of electric power from the Chambal Project by the Rajasthan State Electricity Board; against the total requirement of 2,000 KWs for the ball mill etc. (750 KWs) and other installations in the mines (1,250 KWs), only 1,000 KWs were released.

2.34. The Committee enquired whether any formal contract was entered into with the Rajasthan State Electricity Board stipulating supply of power to this mill on completion and whether no remedy was available under the contract against the failure of the Electricity Board to honour its commitments. The Management stated that "Pending determination of final tariff for supply of power to HZL units i.e. smelters and mines, which was under consideration at Ministerial level, no formal contract was entered into with Rajasthan State Electricity Board.

2.35. Asked about the loss suffered by the Corporation on account of non-supply of power from Chambal Project, the Ministry in a note submitted to the Committee stated as follows:—

> "As the zinc smelter at Debari was commissioned only in early, 1968, it cannot be said that there has been direct loss suffered by Hindustan Zinc Ltd. on account of non-supply of power for the 500 tonnes Ball Mill from the Chambal Project. Even if the Ball Mill had been put in operation and concentrates produced, the same could not have been smelted to produce zinc metal which is the saleable product."

2.36. In a note submitted to the Committee the Management have stated as under:—

> "By not starting the Ball Mill earlier, there was hardly any loss as there was not enough ore available for treatment in the Mill."

2.37. The Committee are surprised to note that although the Ball Mill was installed in September, 1966 to feed the Zinc Smelter at Debari, the smelter was commissioned only in early 1968. They are informed that "even if the Ball Mill had been put into operation and concentrates produced, the same could not have been smelted to produce zinc metal". The Committee are also informed that "by not starting the Ball Mill there was hardly any loss as there was not enough ore available for treatment in the Mill." The Committee have commented elsewhere in the Report about the lack of synchronisation of the different activities taken up in connection with the implementation of the integrated scheme.

2.38. The Committee note that though the trial runs of the 500 tonne Ball Mill were completed in September, 1966 it was not commissioned till December, 1967, even after a lapse of one year on account of inadequate supply of electric power from the Chambal Project. Against their requirement of 2000 KWs for the Ball Mill, only

1000 KWs were released by the RSEB. The Committee are informed that pending determination of final tariff for supply of power, no formal contract was entered into with RSEB. The Committee see no reason why a formal commitment for supply of required quantity of power could not have been entered into with RSEB, leaving the rates to be decided by Government/RSEB later so that there was at least an assured supply of the electric power.

E. Erection of Zinc Smelter at Debari

2.39. Prior to take over of the undertaking by Government about 75 per cent of the work on the erection of zinc smelter had been completed and further work had been stopped on account of financial difficulties of the MCI. As a result supplementary agreement had to be entered into with M/s. Krebs and Penarroya of France with whose technical assistance the smelter was being erected, in November, 1966 on lump sum payment of F.F. 6,50,000 (about Rs. 9,84,850) for the completion of the residual work. The erection of the smelter was completed in January, 1968 when production of Cathodes commenced. The production of ingots started in May, 1968 and final acceptance tests were completed in June, 1968.

F. Renovation of Existing Ball Mills

(i) *Delay in completion of the work*

2.40. Two ball mills of the capacity of 300 tonnes and 175 tonnes per day were taken over by the Company from the M.C.I. Another mill of 500 tonnes capacity was installed in September, 1966 and commenced production from December, 1967. As the two acquired mills were very old (14 and 20 years old), the Management felt that the existing 3 mills having a combined capacity of 975 tonnes per day were not dependable even to deal with 800 to 850 tonnes of ore per day partly due to continuous operations for about 6 days in the week leaving little time for maintenance and partly due to non-availability of sufficient spares for the imported equipment. Accordingly, a scheme of renovation envisaging additions and modifications to the existing ball mills was approved by the Board of Directors in December, 1969 at a cost of Rs. 17.91 lakhs (including Rs. 4.60 lakhs for balancing equipment) in order not only to keep the mills running at the present capacity but also to increase the capacity to about 1,100—1,200 tonnes per day so that the expected increased production from the mines (about 1,200 tonnes per day by the 2nd quarter of 1970) could be handled till the installation of 2,000 tonnes mill which was expected to be completed by 1971.

2.41. The renovation was completed in August, 1971 against the expected date of December, 1970, at a cost of Rs. 14.73 lakhs (upto 31st March, 1972) while no expenditure was incurred on the purchase of balancing equipment as it was held in abeyance.

2.42. The Ministry stated (May, 1975) that the work of renovation had to proceed slowly keeping in view the need to keep the Mills running to capacity during renovation.

2.43. The Committee enquired if it could not have been foreseen before estimating the date of completion of the renovation work. The Management have stated that it could be foreseen with greater accuracy. This was due to managerial lapse, and necessary action was taken.

(ii) *Placement of order for the equipment*

2.44. The order for the main equipment required for the renovation of the existing Ball Mills was placed in July, 1970 and was scheduled to be delivered by December, 1970. The equipment was ready with the supplier for despatch by the middle of October, 1970 and an amount of Rs. 0.46 lakh was paid to him as bonus in terms of penalty/bonus clause in the contract. Clear despatch instructions were, however, given only in December, 1970: after assessing the comparative economies of rail and road transportation.

2.45. The Committee enquired as to why despatch instructions could not be given in time so as to take advantage of early delivery of equipment. The Management have stated as follows:—

> "Although the equipment was ready, it was considered essential to transport the same by road instead of by Rail, the latter due to transhipment etc. would have meant risking damage to the equipment as well as perhaps delaying final delivery. Negotiations for road transport took considerable time and hence the delay. Even if the equipment had arrived earlier, the payment of bonus would have been attracted as provided in the agreement."

2.46. The Committee regret to note that the scheme of renovation envisaging additions and modifications to the existing Ball Mill at a cost of Rs. 17.19 lakhs including balancing equipment for Rs. 4.60 lakhs which was expected to be completed by December, 1970 was actually completed in August, 1971 after a delay of 8 months and

that too without the balancing equipment. The Management admitted that the delay was due to managerial lapse and necessary action was taken.

2.47. The Committee find that though the scheme included provision of balancing equipment and the scheme was to be completed in December, 1970, the equipment for renovation was ordered only in July, 1970. The Committee regret to note that despatch instructions for the equipment which were ready for supply as early as October, 1970 were actually given only in December, 1970 resulting in payment of bonus of Rs. 46,000. The Committee are informed that the delay was on account of consideration of the economics of rail vs. **road transport and ultimately the negotiations for road transport took considerable time. It has been contended that even if the equipment had arrived earlier, payment of bonus would have been attracted according to the terms of the agreement. The Committee see no reason why the comparative economics and feasibility of the rail vs. road transport should not have been assessed even before placing order for the equipment required for the renovation of the existing Ball Mills instead of waiting till the equipment was ready. The Committee are not convinced of the reason that even if the equipment had arrived earlier, payment of bonus would have been attracted. The Committee need hardly stress that recurrence of such lapses should be avoided in future with proper planning and foresight.**

G. Erection of 2,000 tonnes Mill

(i) *Delay in Taking the Decision*

2.48. In June, 1961, the MCI, entered into a contract with M/s. Penarroya of Paris for obtaining technical assistance for increasing the production of Zawar Mines to 2,000 tonnes of ore per day and for expanding the mill capacity to treat 2,000 tonnes of ore per day. On the basis of the reports submitted by the consultants, the MCI undertook the mine expansion but decided to launch a short-term scheme for the development of mill capacity to 1,000 tonnes instead of 2,000 tonnes per day. After the undertaking was taken over by Government in October, 1965, Government invited an expert from M|s. Penarroya of France, who arrived in November, 1966 and gave a report to Government/HZL in December, 1966 recommending that the construction of 2,000 tonnes per day mill exclusively for Mochia should start from January, 1968 to be commissioned by January, 1970.

2.49. In March, 1967 the report submitted by the French expert was examined by the Board of Directors who directed the Management to send a proposal to Government for the construction of 2,000 tonnes per day mill in addition to the existing 975 tonnes per day ball mills. After examining the likely costs of constructing this Mill and the impact of overall economies of operation, the proposal to instal a new Mill of the capacity of 2,000 tonnes per day was sent by the Company to Government in January, 1968 indicating an investment of about Rs. 2.33 crores.

2.50. It was stated that at that stage there were two alternative courses open to the Management—expanding the existing Mill by 1,000 tonnes capacity or putting up a new 2,000 tonnes capacity mill. Pending a decision on the capacity of the Ball Mill, alternative quotations were called for in April, 1968 in respect of capacities of 1,000 and 2,000 tonnes Ball Mills respectively. Quotations were received from 9 parties in October, 1968 out of 24 parties who purchased the tender documents. The offers were technically examined by the Director, National Metallurgical Laboratory and the Chief Mining Adviser to the Government of India. A preliminary Report of the tenders was submitted to the Board who considered the same at the meeting held on 16-12-68. Following the advice given by the Chief Technical Adviser in the Department of Mines, the Board in that meeting decided that installation of the 2,000 tonnes Ball Mill need alone be taken up.

2.51. After taking into account the view of the two officers, the Board of Directors appointed in February, 1969 a sub-committee of Directors which recommended in March, 1969 that revised quotations should be obtained from all the parties. The revised offers were received in May, 1969.

2.52. In regard to the fresh tenders the Chairman, HZL stated during evidence as follows:—

> "In this process it is admitted that time was lost. Much of this could have been saved if based on the first tender itself, the decision was taken. For a turn-key job like this, when various tenders have already given their prices once, if re-tendering is done, it is only likely that having known their competitors prices, they start quoting lesser price but also start changing the scope of work. It was found that in the successful tender, which was the lowest, many operationally essential items were not included.

> These had to be reincluded and prices re-negotiated. These were completed on that basis."

2.53. Approval of the Government was sought in June, 1969 for awarding the work to M/s. MC Nally Bird Engineering Company Ltd. Calcutta. The letter of intent was issued to the firm on the 31st July, 1969. The proposal to instal the Mill was, however, approved by the Government on 2nd August, 1969. In this connection, the Ministry stated that "since the Company had sent the proposal to the Government in January, 1968 they had invited tenders in anticipation of Government approval. This was done by the Company to expedite evaluation and finalisation of the tenders on receipt of Government sanction.

2.54. Asked as to why the letter of intent was issued to M/s. MC Nally Bird Engineering Co. Ltd. even before Government's approval, the Management have stated that in order to avail of the validity date of the offer of McNally Bird Engineering Co. (which was valid upto 31st July, 1969 only), the Company collected unofficial information from the Ministry that the sanction of the Government was under issue and therefore without waiting for a formal Government sanction in writing the Letter of Intent was issued on 31st July, 1969 *i.e.* two days prior to the issue of formal telegraphic communication from the Ministry."

2.55. Formal acceptance of the offer was communicated on a turn-key basis in May, 1970 for Rs. 261.69 lakhs.

2.56. The Committee enquired of the time gap between taking the decision to construct the Mill (in March 1967) and the award of the work (in May, 1970) was justified. In a note submitted to the Committee the Management stated as follows:—

> "the mill was the major investment centre and therefore took some time for preparing detailed specifications before floating the tenders. Such a large plant had never been built in India, entirely from indigenous source before and the company itself did not also have sufficient expertise to take a decision on the strength of appraisal of tenders without external help.
>
> The Company had to work out comparative economies of constructing a completely new 2,000 TPD mill or expanding the existing 975 TPD mill by another 1000 TPD or so.

Even the French expert from Penarroya who sumbitted a report to the Company/Government of India on 30th December, 1966 had anticipated that the actual construction would start from January, 1968, thus providing for about one year for coming to a decision on the agency to construct the Mill.

Reckoning upto the date of issue of Letter of Intent *i.e.* 31-7-79, the company however took little more than 2 years to take a decision for awarding the contract.

Such a gap between the decision to put up essential milling capacity (March, 1967) and the decision to award the contract (July, 1969) cannot be fully justified."

2.57. During evidence the representative of the Ministry explained the position as follows:—

"If the opening years are taken, the Management was doing everything except deciding to build the Ball Mill. It was setting up special Committees consisting of 3-4 persons outside the management, they get the report then it called somebody else. They were not sure of what kind of a thing the Ball Mill is. There was a distinct hesitancy on the part of the Management, to order for a 1000 tonnes or 2000 tonnes Ball Mill." He added "even within the Government, Zinc mining was something new to the higher level, so everybody wanted to be doubly sure that what was being decided was financially and technically sound."

2.58. The Committee are surprised to note that before taking any final decision about the capacity of the new Ball Mill the Hindustan Zinc Ltd. sent to Government in January, 1968 a proposal to instal a new Mill of the capacity of 2000 tonnes per day and without waiting for the approval of Government went ahead with calling for alternative quotations in April, 1968 in respect of capacities of 1000 and 2000 tonnes Ball Mills respectively. It was only in December, 1968 that the Board of Directors decided that installation of the 2000 tonnes Ball Mill need alone be taken up. The Committee find that the Board of Directors decided in February, 1969 to appoint a sub-Committee which recommended invitation of revised quotations in March, 1969 which were received in May, 1969. Approval of the Government for the Project was conveyed only after the Management had already awarded the contract for the work on 31st July, 1969. Even thereafter, it took almost one year for the Undertaking

to communicate its formal acceptance of the offer to the contractor which was done only in May, 1970. The Committee are distressed to note that as admitted by the Management, reckoning upto the date of issue of letter of intent i.e. 31-7-69, the Company took little more than 2 years to take a decision for awarding the contract; such a gap between the decision to put up essential milling capacity (March, 1967) and decision to award the contract (July, 1969) cannot be fully justified.

2.59. The Committee were also informed that in the successful tender, which was the lowest, many operationally essential items were not included. The Committee are led to conclude that the system of scrutiny of tenders has not been proper.

2.60. The Committee recommend that the entire matter regarding the award of the contract and the delay on the part of the Ministry and the Undertaking in taking a final decision about the setting up of the Mill should be thoroughly investigated by a expert committee in order to pinpoint lapses and fix responsibility. The expert committee should also examine whether it would not have been better to launch a short-term scheme for the development of the mill capacity to 1000 tonnes in the first instance as was recommended by the Consultant originally in 1961. before the Company was taken over by Government. and whether it would not have been advisable to award the contract on the basis of the tenders originally received instead of calling fresh tenders.

(ii) Delay in the Erection of the Mill

2.61. The work in regard to the erection of 2000 tonnes Ball Mill was to be completed for trial runs by October, 1971 subject to the conditions that the firm would *inter alia* get import licence from Government within 90 days of the submission of the application and that the Company would assist the firm in obtaining quotas etc. for controlled items, particularly steel.

2.62. In view of the difficulties encountered in obtaining the import licenses and in procuring steel, the firm expressed (February, 1971) its inabiliy to adhere to the stipulated date of completion which was extended by the Company (September, 1971) to April, 1972 subject to the condition that at least half of the stream with a capacity of 1,000 tonnes would be completed by December, 1971. The Company also approved some additions to the plant and change of specifications of the equipment.

2.63. The work was not completed even within the extended time limit. The plant with two ball mills of the capacity of 500 tonnes per day each was completed in July, 1972 against the revised stipulated date of December, 1971. The remaining two ball mills each of 500 tonnes per day capacity were completed in September, 1972 and April, 1973 respectively. The total payments made to the firm upto June, 1973 amounted to Rs. 263.12 lakhs against the contracted amount of Rs. 261.69 lakhs. The Company stated (April, 1974) that the total payment was more than the contract value on account of escalation clause included in the contract and that as the delay in completion could not be solely attributed to the firm, no penalty was levied on them.

2.64. During evidence the Committee enquired whether adequate steps were taken by the Management/Ministry in time about requisitioning of materials like steel etc. so that the work could be started immediately after awarding the contract to M/s. Mc. Nally Bird Engineering Co. Ltd. in July, 1969. The representative of the Ministry stated as follows:—

> "During 1970—72 period there was acute steel scarcity in the international and domestic markets and attempts were made to obtain steel from the JPC to meet the requirements of this contractor. But the required quantity of steel could not be allocated. This was also the period when the Rourkela Steel Plant collapsed. This interruption was one of the most important contributing factor. Import subsititution was also something which was not available and you could not have shorter quotations from abroad especially in 1971. Iron and Steel Controller was approached by the concerned authorities but he just could not do it, it was no use blaming him, it was a tight situation and it was also a defence priority time."

2.65. In a subsequent note submitted to the Committee, the Ministry stated as follows:—

> "As a turn-key contract, the responsibility for procurement of steel, etc. primarily rested with the contractor.
>
> Immediately after receipt of the 'letter of intent' in July, 1969, M/s. McNally Bird approached the Joint Plant Committee for procurement of steel plates and sheets.

In October, 1969, MBE informed Hindustan Zinc Ltd. that Joint Plant Committee had planned the steel requirements of the beneficiation plant under Priority-II and that the deliveries would take about a year or so. The matter was reported to the Department of Mines by Hindustan Zinc Ltd. The Department of Mines took up the matter with the Iron and Steel Controller. The latter allocated 116 tonnes of M.S. plates to MBE in January, 1970. By about this time, the availability of steel items had become acute and steel allocation was brought under the Iron and Steel Control Order.

The requirements of MBE were sponsored by the Department of Mines (on the recommendation of Hindustan Zinc Ltd.) for priority allocation by the Joint Plant Committee from the period April—September, 1970 onwards. In addition, matter was taken up at Secretary's level with the Department of Steel in April and August, 1970.

Because of the acute position of availability of steel in the country, the quantity of steel for which priority was allocated was smaller than what the company had asked for, and actual supplies were still less.

In view of the difficulties in getting steel items for the beneficiation plant, Hindustan Zinc Ltd. was informed on 26-12-1970, that the supply position from indigenous sources of certain items was very bad and that the Department of Steel (who were consulted in the matter) had no objection to the import of the same. The Company was also advised to assess the requirements *vis-a-vis* indigenous availability and their suitability and come up with proposals for import.

In January, 1971, Hindustan Zinc Ltd. submitted their proposal for the import of about 1686 tonnes of steel plates. Early in March, 1971, formal clearance of the Department of Steel was obtained for the import. The matter was followed up with various concerned Departments in consultation with Hindustan Zinc Ltd. and the licence for import of steel was issued by CCI&E."

2.66. The Committee find that after issue of the letter of intent in July, 1969 M/s. McNally Bird Engineering Company were to complete the work regarding erection of 2000 tonnes Ball Mill by October, 1971. Subject to the condition that the firm would inter alia **get**

the import licence from Government within 90 days of submission of the application and that the undertaking would assist the firm in obtaining quotas etc. for controlled items, particularly steel. The erection of the entire plant was, however, completed in April, 1973. The delay in the erection of the Mill has been attributed to the difficulty encountered by the firm in obtaining the import licence and in procuring steel.

2.67. The Committee not that immediately after receipt of the letter of intent in July, 1969 the firm approached the Joint Plant Committee for the procurement of steel plants and sheets and sought the assistance of HZL who in turn reported the matter to the Department of Mines. It was only in December, 1970, that the Department of Mines informed HZL that the supply position from indigenous sources was bad. Formal clearance of the Department of Steel to import about 1686 tonnes of steel plates was obtained in March, 1971.

2.68. The Committee have earlier recommended the appointment of an expert Committee to investigate the delay in taking decision about the erection of the Mill. They would like that the further delay caused in the erection of the mill due to non-availability of essential items like steel should also be investigated by the expert Committee in order to find out the extent to which delays could have been avoided with proper planning and foresight.

H. Delay in the Development of Central Mochia Mine

2.69. A Project Report was got prepared by MCI in December, 1962 through M/s. Penarroya in respect of the Development of Central Mochia Mine to produce 2,000 tonnes of ore per day. Hindustan Zinc Ltd. modified the Bar Chart (originally prepared on 28-2-1963 by MCI) on 2-11-1965, 1-12-1965 and 16-8-1966 according to which the production of 2,000 tonnes of ore per day was expected to be achieved by July, 1972. In his report submitted in December, 1966 the French expert expected that full production from Central Mochia Mine to feed the new mill of 2,000 tonnes per day capacity would come up by January, 1972, thereby indicating a gap of about 2 years between the commissioning of the mill and the commencement of full production from the mine. The Board of Directors, however, expected that full production from Central Mochia Mine would not be achieved before July, 1973.

2.70. Asked about the reasons for which the Board of Directors expected in attainment of full production from the Central Mochia

Mine by July, 1973 instead of January, 1972 as expected by the French Expert. The Chairman, HZL stated during evidence as follows:—

> "The management of HZL, after taking over, took some time to re-appraise the need for constructing a new 2,000 tonnes mill. In lieu of that, they wondered whether the existing mill could be expanded marginally. This took some time. By the time they called for tenders and a decision was taken, they already lost some of the lead which the mill should have been given. On this basis, the Board found that the mill perhaps would be ready by middle of 1971 and the mine therefore, would be able to go into full production by middle of 1973".

2.71. The Management revised in January, 1970, the time schedule and fixed December, 1972 as the date of production.

2.72. The development of Mochia was however, completed in 1974 and the average daily production ranges between 1500 to 1600 tonnes per day.

2.73. It has been stated that no substantial development of Mochia-Magro Mine could have been made without the erection of 2,000 tonnes per day.

2.74. In this connection the Secretary of the Ministry stated during evidence as follows:—

> "The effect that it has over the extra period, acting in effect as a sort of constraint on the mine development that no body can deny. The Ball Mill was a part of the whole thing and till the Ball Mill was completed, the mine development could not go on beyond a point. The question is, should they have gone ahead and build a 1000 tonnes Ball Mill or not. For that, two good reasons have been given for choosing a 2000 tonne Ball Mill. But, the effect it had in delaying the equal speed of the mine development that effect was there. I concede that point."

2.75. The Committee find that the French expert from M/s. Pernarroya who submitted a report in December, 1966 expected that the new mill of 2000 tonnes per day capacity would be commissioned in January, 1970 and that the full production from Central Mochia Mine to feed the new Mill would come up in January, 1972 thereby indicating a gap of about two years between the commissioning of

the mill and the commencement of full production from the mine. The mill was, however, completed in April, 1973 and the development of the mine was completed in 1974. During evidence the representative of the Ministry stated that "the Ball Mill was a part of the whole thing and till the Ball Mill was completed, the mine development could not go on beyond a point."

2.76. The Committee have already recommended the setting up of an Expert Committee to go into the whole question of delay in regard to the erection of the 2000 tonnes per day Mill. They recommend that Government should examine the case critically to find out whether the delay could have been avoided and the Committee informed of the results.

I. Overall performance of integrated scheme.

2.77. In 1965, when the undertaking was taken over, production of ore was about 500 tonnes per day. The capacity of the ball mill was 475 tonnes per day and another ball mill of 500 tonnes per day was on order. This mill was got released by the Company in May-June, 1966. The Management decided in August, 1966 to step up production from the Central Mochia-Magra mine to 750 tonnes per day and raise additional 250—300 tonnes per day by development of the Balaria mines within six months, thereby bringing the overall production to 1000 tonnes per day by February, 1967. In June, 1967 the target of ore production was reduced to 900 tonnes per day and further reduced to 850 tonnes per day in December, 1968. The targets of average production were again revised as follows:—

	(Tonnes per day)
July, 1969—December, 1969	900
January, 1970—June, 1970	1050
July, 1970—December, 1970	1400
January, 1971—June, 1971	1750
July, 1971—December, 1971	2200
January, 1972—June, 1972	2500

2.78. The ball mill of 500 tonnes per day capacity was installed in September, 1966 but operated regularly from December, 1967. The zinc smelter with 18,000 tonnes ingot capacity went into partial production from January, 1968 and regular production from June, 1968. The new mill of 2,000 tonnes capacity was completed in three phases *i.e.* upto 1,000 tonnes in July, 1972, upto 1,500 tonnes in September 1972 and upto 2,000 tonnes in April, 1973.

2.79. From 1968-69, when the zinc smelter at Debari went into regular production, the annual requirement of ore was about 6,72,000 tonnes for producing 42,000 tonnes of concentrates. The capacity of the ball mill at that time was about 975 tonnes per day or 2,92,500 tonnes per annum (on the basis of 300 days of working). From July, 1972 the capacity of the ball mill was augmented by 1,000 tonnes per day, from September, 1972 by another 500 tonnes per day. Broadly speaking, therefore, the capacities of the ball mills and the zinc smelter *vis-a-vis* the acttual production of ore at different points of time were as follows:—

Year	Capacity of ball mills	Zinc smelter	Actual production of Ore
1968-69	2,92,500 tonnes of ore	18,000 tonnes of ingots or 6,72,000 tonnes of ore	1,91,604
1969-70	2,92,500 ,,		2,29,949
1970-71	2,92,500 ,,		2,70,006
1971-72	2,92,500 ,,		3,18,861
1972-73	5,67,500 ,,		3,51,883
1973-74	9,35,000 ,,		4,56,340

2.80. In view of the inability of the mines and the ball mills to provide the required quantity of concentrates, the Company had to import 44,702 tonnes of concentrates during 1969-70 to 1972-73 at a total cost of Rs. 5.27 crores.

2.81. The Committee enquired if the entire quantity of import was unavoidable. The Management have stated as follows:—

> "The requirement of imported concentrates was assessed after taking into consideration the likely time required for the Company's own Mine to feed the Smelter in full. The total quantity of concentrates imported could have been avoided, only if the mine development programme along with matching milling capacity had kept pace with the requirements of the Smelter."

2.82. A Study Team of the Bureau of Public Enterprises submitted in 1969 a report on the performance of Hindustan Zinc Ltd.

The Study Team *inter alia* observed that:—

> "There was an initial lack of matching between progressive development of mining and milling capacity and the development of capacity of zinc smelting, which had developed into a serious imbalance in the operation of the complex wherein the attainable level of production of 18,000 tonnes per annum of zinc could be sustained because the production of concentrates was barely 45 per cent of requirement. The Study team recommended that the development of mines and mills needed to be speeded up and its progress watched and controlled so that it was completed by December, 1971, the target fixed by HZL. Considering the multiplicity of activities and agencies involved, it was also recommended that the planning, progressing and monitoring functions be conducted through such techniques as PERT. In the meantime, short term improvements in the operation and management of the mills and mines, in the maintenance of equipment and provision of some immediate balancing equipment were essential in order to raise the production of concentrates to the maximum extent possible and reduce the dependence on imported concentrates for achieving optimum efficiency of the zinc smelter."

2.83. The Committee pointed out that the serious lacunae in the integrated scheme was the absence of synchronisation of different activities. Particularly, required efforts for development of the mines with a view to feed the Zinc Smelter were not initiated in time.

2.84. In a note submitted to the Committee the Ministry have stated as follows:—

> "At the time of acquisition of the undertaking, the only working mine was Central Mochia which was producing about 500 tonnes of ore per day. The Metal Corporation of India had prepared plans for stepping up ore production to 2,000 tonnes per day. After the acquisition, Hindustan Zinc Ltd. obtained the services of a mining expert of M/s. Penarroya of Paris. In November, 1966, who expressed the view that full production from the Central Mochia Mine could be achieved earliest by January, 1972.
>
> The construction of smelter had commenced even before the acquisition of the undertaking and in fact 75 per cent of

> the work had been completed by Metal Corporation of India; it is evident that the matching of mining capacity with the smelter capacity was not initially envisaged by Metal Corporation of India."

2.85. Asked as to why no crash programme was undertaken by the Company to develop Zinc ore mining it was stated as follows:—

> "During the early years of the existence of Hindustan Zinc Limited, the Company was faced with numerous administrative, and technical problems—both in regard to the mines and smelter. The experience in Zinc mining and smelting and the availability of trained manpower in the country were extremely limited. Notwithstanding the difficult situation faced by Hindustan Zinc Ltd. in this regard, the company took up studies for exploration and development of a number of mining projects. It is felt that on account of inherent long mine pre-construction activities, and long mine construction and gestation periods involved in developing major metalliferrous underground mines, quicker results could not be feasible."

2.86. The Committee note that at the time MCI was acquired by the Government of India it had a mining capacity of about 500 tonnes per day and milling capacity (in two Ball Mills) of 475 tonnes per day. The integrated scheme prepared by the MCI in 1960 contemplated development of mining and milling capacity from 500 tonnes per day to 2000 tonnes per day and the setting up of a zinc smelter of 18,000 tonnes of zinc ingots. Prior to take over of the undertaking by Government about 75 per cent of the zinc smelter was reported to have been completed. MCI had also placed orders for the import of a 500 tonnes Ball Mill from USA in September, 1962.

2.87. The integrated scheme as modified by the Hindustan Zinc Ltd., covering new areas of development, inter alia **envisaged (i) installation of 500 tonnes Ball Mill (ii) Development of Central Mochia Mine (iii) Erection of 2000 tonnes Ball Mill (iv) renovation of the existing Ball Mills and (v) completion of the remaining work relating to the zinc smelter at Debari.**

2.88. The Committee find that the Ball Mill of 500 tonnes per day capacity was installed in September, 1966 but operated regularly from December, 1967. The Zinc Smelter with 18,000 tonnes ingot capacity went into partial production from January, 1968

and regular production from June, 1968. The new mill of 2000 tonnes capacity was completed in three phases i.e. upto 1000 tonnes in July, 1972 upto 1,500 tonnes in September, 1972 and upto 2000 tonnes in April, 1973. As the mill was required to be in position before the development of mine, no substantial development of Mochia Magra Mine could have been made without the erection of 2000 tonnes per day mill. The development of the mine was completed only in 1974.

2.89. The Committee regret to note that in view of the inability of the mines and the mills to provide the required quantity of concentrates for the zinc smelter, HZL had to import 44702 tonnes of concentrates during 1969-70 to 1972-73 at a total cost of Rs. 5.27 crores. In this connection, the management have stated that the total quantity of concentrates imported could have been avoided only if the mine development programme along with matching milling capacity had kept pace with the requirement of the smelter. The Ministry have stated that "the matching of mining capacity with the smelter capacity was not initially envisaged by the Metal Corporation of India."

2.90. Although the Committee agree that one of the serious lacunae in the integrated scheme inherited by the Hindustan Zinc Ltd. from the MCI was the absence of synchronisation of different activities required efforts for development of the mines with a view to feed the zinc smelter were not initiated in time. The Committee, however, regret to note that even after taking over of the MCI and while modifying and implementing the integrated scheme nothing was done by Hindustan Zinc Ltd., to rectify the lacunae and the lack of synchronisation continued till the completion of the scheme mainly due to delays in the development of mining capacity to match the existing smelting capacity.

2.91. The Committee find that the study team of the Bureau of Public Enterprises recommended as far back as in 1969 that the development of mines and mills needed to be speeded up and its progress watched and controlled so that it was completed by December, 1971, the target fixed by HZL. The BPE also recommended that planning progressing and monitoring functions be conducted through PERT. In the mean time certain short term improvements were essential to raise the production of concentrates to the maximum and reduce the dependence on imported concentrates for achieving efficiency of zinc smelter. The Committee are not sure whether the short term measures were put into operation so as to cut down the import of concentrates.

2.92. The Committee have already commented upon the delay in the development of mining and milling capacity and recommended investigation of the delays on the part of the Management and Ministry at various stages. The Committee would like that responsibility for the huge national loss due to these lapses should be fixed and Committee informed.

J. Construction of Dam over River Tidi

(i) *Shortfall in meeting the requirements*

2.93. Before acquisition of the undertaking of the Metal Corporation, the water requirements of the Zawar Mines for daily ore production/benefication of about 500 tonnes used to be met from nearby wells. These wells usually went dry during the summer months making it difficult to carry on the mining operations. To relieve the Metal Corporation of India of the water shortage and in the context of the Company's proposals for mine development, the State Government had agreed to construct a dam across the Tidi River in Zawar area. The State Government had, in fact, approached the Planning Commission as early as August, 1962 to include the Tidi Dam project in its Third Five Year Plan in the irrigation sector and desired provision of Rs. 25 lakhs for the purpose. The Commission enquired from the State Government in September, 1962, whether the scheme had been investigated in detail and desired a project report. No project report was, however, sent to the Planning Commission and the scheme was not included in the Third Plan of the State or the Annual Plan for 1966-67.

2.94. Subsequent to the acquisition of the undertaking of the MCI in 1965 the question of adequate and continuous water supply to the Zawar Mines was discussed by the then Minister (Mines & Metals) with the CM, Rajasthan in March, 1966 during which it transpired that the State Government had earlier agreed to bear the cost of the dam on the basis of the previous management agreeing to guarantee a return of 4 per cent on the investment by the State Government. The discussions disclosed that while the State Government were prepared to undertake the construction of the Dam, major part of the cost and the overhead charges would have to be borne by the HZL. As no funds had been provided for the project in the State Plan for 1966-67, the State Government wanted the Planning Commission to be moved in the matter. A reference was accordingly made to the Planning Commission (with copy to the Ministry of Irrigation & Power and the CW&PC) on 26-5-1966 for provision of funds for the project in the State Plan. The Planning Commission addressed the State Government in June, 1966 for obtaining a project report for the scheme but no progress could be made on the scheme due to the State Government taking the stand of inadequacy of funds and desiring funds outside the State Plan ceiling. The matter was pursued with the Planning Commission who, in June, 1967, gave a broad indication that funds would be provided to the HZL for the construction of the dam through the agency of the Rajasthan State Irrigation Department. In August, 1967, Planning Commission allocated a sum of Rs. 40 lakhs for the Tidi Dam within the overall Plan allocation of the HZL.

2.95. Based on the above, HZL entrusted the work of construction of the Tidi Dam to the Rajasthan Government.

2.96. Tenders were invited and received by the State Government in March, 1968 and it was decided to award the work to the lowest tenderer.

2.97. The date for acceptance of the tender was extended from 25th July, 1968 to 25th December, 1968 but the lowest tenderer commenced the work in October, 1968 in anticipation of the formal acceptance of his tender. However, he abandoned the work on 16th December, 1968 due to labour unrest.

2.98. The work was thereafter done departmentally by the State Government. The expected date of completion of the dam was not indicated by them. The estimated cost was revised from time to time and in April 1972 the State Government revised the estimate to Rs. 99.69 lakhs for a height of 1407 ft. and Rs. 85.07 lakhs for a height of 1376 ft. MSL.

2.99. While reviewing the revised estimate of April, 1972. The Central Water and Power Commission observed in June, 1972 that the dam at full height would generate only 95 per cent availability of 140 million cft. and not 300 million cft. of water as originally planned by the Irrigation Department. The dam at its present height (1,376 ft. MSL) has the storage capacity of 80 million cft. and is considered sufficient to meet the existing requirement of Zawar mines. However, by 1976-77 when the requirement of water for exploitation of Zawar group of mines is expected to increase to 182 million cft. of water there would be shortfall of 42 million cft of water even if the dam is extended to its full height of 1,407 ft. MSL.

2.100. The Committee enquired as to why the Central Water and Power Commission was not initially consulted before the work regarding construction of Dam over river Tidi was taken up for execution through the State Government. The Management stated that apart from the reference dated 26-5-1966 no specific reference was made to the C.W. & P.C.*

2.101. The dam was partly completed by the State Government in June, 1973 upto a height of 1,376 ft. MSL. The dam is now being completed by Hindustan Zinc Ltd. upto a height of 1407 ft. MSL.

2.102. Though the water was being drawn from Tidi Dam by Hindustan Zinc Ltd. for its requirements since 1972-73 onwards, the Dam was physically handed over to the Company by the State Government on 31-5-1975 pending finalisation of an agreement between the State Government and HZL.

2.103. The Ministry stated (May, 1975) that "The State Government has informed that another dam further downstream of the Tidi river, called Tidi stage II (Dia Dam) will be constructed by the State Government for irrigation purposes and has agreed that HZL can draw 70-80 M. cft. of water from its Dam to meet shortfall of water availability from Tidi dam........"

2.104. Exact terms and conditions for the supply of water have not yet been finalised. The Management have stated that there is no definite indication from the State Government for the completion of the Dam but it is expected that it may come up by 1980-81.

(ii) **Project Estimates**

2.105 The estimated cost of the Tidi Dam Project was revised from time to time as indicated below:—

(Rupees in lakhs)

	October, 1969	April, 1970	October, 1970	April, 1971
1. Revision of estimates by State Government.	60·42 (storage capacity 80 M. cft. of water with maximum capacity of 300 M. cft.)	66·25	79·79 (to raise the height to 1406 ft. MSL)	67·42 (to raise the height to 1376 ft. MSL and storage capacity to 80 M. cft.)
2. Approval of estimates by the Company.		February, 1970		April, 1971

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* At the time of factual verification the Management have stated that "the Irrigation and Power Division in the Planning Commission were consulted *vide* their U.O. I&M No U. 05/35/66 MIV, dt. 2.8.67 addressed to Ministry."

2.106. In April 1972 the State Government further revised the estimate to Rs. 99.69 lakhs for a height of 1,407 ft. MSL and Rs. 85.07 lakhs for the height of 1,376 ft. MSL.

2.107. The State Government were, however, requested to stop the work at 1,376 ft. MSL.

2.108. Out of the total claim by State Government of Rs. 84.25 lakhs, Hindustan Zinc Ltd. has paid a sum of Rs. 77.13 lakhs. The claim for the balance amount of Rs. 7.12 lakhs is under examination.

2.109. The Dam is now being completed by HZL upto a height of 1407 ft. MSL. Total cost of the construction of the Dam upto that height will be about Rs. 112.25 lakhs. In this connection the Management have stated that the State Government were requested to stop work at 1376 ft. MSL and till the State Government had completed work upto a value of Rs. 84.25 lakhs leaving about Rs. 5.11 lakhs worth of work inherent in completion, upto 1376 ft. MSL level. In other words the estimate of Rs. 99.69 lakhs framed by the State Government for the full height of the Dam was very unrealistic in as much as even for completing upto 1376 ft. level, the expenditure would have touched Rs. 90 lakhs.

2.110. The Committee find that the estimated cost of the Tidi Dam entrusted by HZL to the Rajasthan Government for construction had been revised from Rs. 60.42 lakhs in October, 1969 to Rs. 67.42 lakhs in April, 1971 and finally to Rs. 85.07 lakhs in April, 1972 for a height of 1376 ft MSL. In April 1972 the State Government further revised the estimate to Rs. 99.69 lakhs for a height of 1,407 ft. MSL. The State Government were asked to stop the work at 1376 ft. MSL and the dam is now being completed by HZL upto a height of 1407 ft. MSL at the estimated cost of Rs. 112.25 lakhs. According to HZL "the estimate of Rs. 99.69 lakhs framed by the State Government for the full height of the Dam was very unrealistic" in as much as even for completing the dam upto 1376 ft. MSL level, the expenditure would have touched Rs. 90 lakhs. They would like the Ministry to examine as to how far the revised estimate of Rs. 112.25 lakhs was reasonable and why the work could not have been got completed by the State Government as was done earlier. The Committee would like to be informed of the results.

2.111. The Committee are surprised to find that while examining the estimate of the Project as revised in April, 1972 the CWPC informed in June, 1972 that the dam at full height would generate only 95 per cent availability of 140 million cft. and not 300 million cft. as originally planned by Irrigation Department and there would be a

shortfall of 42 million cft. of water by 1976-77 even if the dam is extended to the full height of 1407 ft. MSL. The Committee are not sure whether the detailed project estimate of the dam was scrutinised and the availability of water etc. ensured by the Hindustan Zinc Ltd. before acceptance of estimate was given to the State Government for execution of the work. The Committee would like that the entire matter should be throughly investigated with a view to fix responsibility for the lapse.

2.112. The Committee also note that out of the total claim of State Government for Rs. 84.25 lakhs a sum of Rs. 77.13 lakhs has been paid by HZL. The Committee would like to be informed about the settlement of the balance.

2.113. The Committee regret to find that though water was being drawn from the dam for the requirements of HZL from 1972-73, the dam was physically handed over only on 31st May, 1975 pending finalisation of the agreement between State Government and HZL. The Committee would like to be informed about the finalisation of the agreement with the State Government and about the terms and conditions of water supply.

III

PRODUCTION CAPACITY FOR ZINC AND LEAD

A. Targets for the Fourth Five Year Plan

3.1. The production of zinc metal in India commenced for the first time in 1967-68 with the commissioning of the (i) zinc smelter in the private sector at Alwaye (Kerala) in May, 1967 and the (ii) zinc smelter in the public sector at Debari (Rajasthan) in January, 1968.

3.2. At the time the Metal Corporation of India was acquired by the Government of India the lead Smelter at Tundoo was expected to produce 3,600 tonnes of lead.

3.3. In August, 1968 the demand for zinc metal in the country was assessed by the Planning Group on non-ferrous metals at 1,42,000 tonnes by the end of the Fourth Five Year Plan (1973-74) and at 2,25,000 tonnes by the end of Fifth Five Year Plan (1978-79). The Fourth Five Year Plan, therefore, envisaged doubling of the capacity of the two existing zinc smelters (one owned by the Company with a capacity of 18,000 tonnes per annum and the other by a private firm, Cominco Binani Zinc Limited having a capacity of 20,000 tonnes located at Alwaye) and the setting up of a new zinc smelter at Vishakhapatnam for the production of 30,000 tonnes per annum. Simultaneously, the lead smelter at Tundoo in Bihar owned by the Company and having an annual capacity of 3,600 tonnes of refined lead, was proposed to be modernised in order to ensure more efficient working and for increasing its capacity.

B. Expansion of the Capacity of Zinc Smelter at Debari

3.4. The zinc smelter with a capacity of 18,000 tonnes was completed in June, 1968. The preparation of a project report for the expansion of the smelter to a capacity of 36,000 tonnes was entrusted to M/s. Krebs Penarroya who provided technical collaboration for the original plant in October, 1969. The project report was received in September, 1970 and was forwarded to Government, with recommendations for acceptance, in December, 1970. Government approved the implementation of the project in September, 1971 (including adjustment of the existing superphosphate plant for the production of triple superphosphate) at a cost not exceeding Rs. 10.49 crores.

3.5. About the delay in approving the Project Report the Ministry have stated as follows:—

3.6. After examination of the report in the Department of Mines and receipt of the comments of Ministry of Finance, Planning Commission, Ministry of Petroleum and Chemicals and DGTD etc. approval of the Cabinet was obtained in July, 1971. The sanction for the project was accorded after obtaining clarification from Hindustan Zinc Ltd. that it would be possible to synchronise the expansion of the mines to feed the expanded capacity of the smelter.

3.7. According to the Project Report the construction of the entire plant is expected to take a period of 3-1|2 years.

3.8. The Hindustan Zinc Limited entered into an agreement with M|s. Krebs of Paris in May, 1973 for a period of 3 years for technical collaboration for the expansion of the Smelter. As per agreement the capacity of the plant is being expanded to 45,000 tonnes of Zinc Ingots and 190 tonnes of cadmium per year.

3.9. The Committee enquired about the reasons for delay in entering into a collaboration agreement after approval of the Project Report. The Management have stated as follows:—

> "The formal sanction to the Project Report for expansion of Debari Smelter was conveyed by the Government, in September, 1971. Hindustan Zinc Ltd. therefore had in hand project reports for two smelters *i.e.* a new smelter at Vizag and a smelter to be expanded at Debari—for simultaneous execution. The operating base of the Company was necessarily small because it was operating on a small 18,000 tonnes smelter and there is perhaps no parallel example where virtually two smelters have been put up by a Company simultaneously.
>
> It was earlier decided by the Company that in view of the two smelters coming up simultaneously, advantage would be taken for standardising technology, equipment and construction methods wherever possible.
>
> Under advice from the Government Engineers India Ltd., were appointed by Hindustan Zinc as the prime Indian

Consultant for both Vizag and Debari Smelters. After negotiating the terms they were given Letter of Intent in November, 1971.

By this time, Bipromet of Poland who were the authors of the project report for Vizag had already been invited to India to work out the terms for rendering consultancy and engineering services for putting up the Vizag Smelter. As there had been a number of criticisms about the adequacy of the Debari Smelter with regard to the capacity of 18,000 tonnes, we decided to draw two experts from Bipromet to examine the Debari Smelter at depth and give their recommendations. One of the tasks given to them was to decide if the expansion of Debari Smelter could also be taken up by them after matching the existing technology of Debari with the technology of Bipromet. The experts arrived in March, 1972 and submitted their report in April, 1972. Simultaneously as expert from Penarroya was also invited to examine the entire smelter. His report was also available in April, 1972.

An "In House Seminar" on the capacity of Debari Smelter was also conducted between the 10th and 14th December, 1971.

Representatives from Lurgi Frankfurt were invited to India in January, 1972 to study the existing Roaster at Debari and also recommend appropriate type of Roaster at Debari and also recommend appropriate type of Roaster for Vizag and Debari expansion.

Engineers India Ltd., who were provided with a copy of the Project report for Debari expansion, were invited to make their comments on the report.

It may be seen therefore that between September, 1971 and April, 1972 Hindustan Zinc arranged for study of the existing smelter with a view to obtain the optimum technology for its expansion.

In April, 1972 EIL sent their comments on Debari Smelter project report along with the suggestion that Hindustan Zinc should continue with batch leaching process as at Vizag by doubling the facilities. This recommendation was not acceptable.

After taking into consideration the recommendations made by the Polish Expert, Lurgi Experts as well as EIL's views on the project report for Debari Expansion Hindustan Zinc Ltd. approached in May, 1972 Krebs India and Krebs Paris (who were authors of the Debari Expansion Report) for their offer to work as Consultant and render engineering services for expansion of Debari Smelter.

The offers from Krebs India and Krebs Paris were received in July, 1972 and was submitted to Government for approval in August, 1972. Simultaneously the draft agreement with Lurgi Frankfurt for supply of Roaster technology for Debari Expansion was also submitted to the Government in August, 1972.

Government's approval alongwith FIB clearance for signing the agreement with Krebs Paris was received in May, 1973 and was signed in the same month.

It may be seen therefore that the sanctioning process at the Government level for signing the agreement with India and Krebs Paris took almost 10 months. Even after signing the agreement in the month of May, 1973, the agreement could not be made effective by making the necessary down payments in terms of the provisions of the contract, as further sanctions from the Ministry of Economic Affairs, Reserve Bank of India etc., were received only in August, 1973.

To summarise, after receipt of the sanction to the project report in September, 1971 upto the time when the agreement with Krebs (Paris)|Krebs (India) could be made effective, almost the entire time was spent in obtaining Government clearances.

After the agreements were made effective consultants prepared the Basic Engineering package and these were available to Hindustan Zinc Ltd. in November/December, 1973, only. Hindustan Zinc Ltd. studied these documents and had detailed discussions with Krebs-Pannaroya during February, 1974 when all the parameters including specification of equipments were finalised.

Only on receipt of final specifications from Krebs-Pannaroya action could be taken for procurement of indigenous and imported equipments in a phased manner. Orders for long delivery of imported equipment which included Roaster items, were placed during 1974. The balance imported equipment which was comparatively of shorter delivery, the orders were placed during October, 1974 to August, 1975. For the indigenous equipment, the orders were placed from October, 1974 in a manner to match up with the completion of the project.

There has been no delay in commencement of work after the requisite approval etc., was received and agreement, signed with the consultants were made effective.

To summarize, after receipt of the sanction to the project report in September, 1971 upto the time when the agreement with Krebs (Paris) Krebs (India) could be made effective, almost the entire time was spent in obtaining Government clearance."

3.10. During evidence the Chairman, HZL statec that "there was delay by Government in clearing our proposal for consultancy agreements and associated arrangements. This delay was avoidable."

3.11. In regard to the completion of the Project the Management have stated that:

"Project report which was initially meant for expansion to 36,000 tonnes had envisaged completion within 42 months from date of basic engineering agreement become effective In this case, this "ZERO" date was May, 1973 and the Smelter is expected to be completed by July 1976 despite the capacity having been revised upwards to 45,000 tonnes."

3.12. It has been further stated that the whole Project (including the phosphoric acid plant) is likely to be completed in 1977-78 and the work is proceeding according to schedule.

3.13. The estimates have since been revised. The revised estimates for the Project as on 1.7.1975 are Rs. 27 crores (approx) with a foreign exchange component of Rs. 6.48 crores. The revised estimates have been submitted to Government for approval on 2.11.1975.

C.Construction of a Zinc Smelter at Visakhapatnam

3.14. The preparation of a detailed project report for an electrolytic zinc smelter was entrusted by Government in February, 1966 to Messrs. Centrozap of Poland who collected the design data in May, 1966. Thereafter, the scheme was kept in abeyance by Government on account of constraint of resources and was revived in September, 1968 when Messrs. Centrozap were asked to complete the unfinished part of the detailed project report. The project report was submitted in September 1970 for a plant based on imported concentrates and was accepted by Government in November, 1970. According to the project report, the construction of the smelter will involve a capital expenditure of Rs. 21.24 crores and will take three years from the commencement of engineering work. The scheme includes manufacture of cadmium and sulphuric acid as by-products and also production of 2,000 tonnes of lead and zinc dust. A lead smelter of 10,000 tonnes capacity based on indigenous concentrates has, however, been included subsequently within the scope of the project and the additional cost of this lead smelter is estimated (1974) at Rs. 5 crores.

3.15. An agreement was signed with Messrs. Centrozap for the supply of know-how and basic engineering for all sections except the Roaster complex and the Sulphuric Acid Plant. The same Polish Agency have been entrusted with the responsibility of technological matching of all sections of the plant including utilities and supervision of construction.

3.16. For the Roaster Complex an agreement was signed with Messrs. Lurgi of Frankfurt. The agreement with Lurgi, provides for supervision of erection of the Roaster Complex. Agreements were also signed with Lurgi of Frankfurt for supply of critical equipment and the Waste Heat Boiler.

3.17. An agreement was signed with Engineers India Ltd. (Public Sector Undertakings) for detailed engineering under the overall supervision of Messrs. Centrozap and Lurgi in their respective sections.

3.18. The principal civil contractors for the project are "Messrs Bridge and Roof".

3.19. The Sulphuric Acid Plant has been awarded on a turn key contract to Messrs. Krebs. India.

3.20. Arrangements for the import of concentrates for this smelter on long term basis from the middle|end of 1975 onwards have been made with four foreign firms and agreements were entered into with them in November, 1972.

3.21. It has been stated that the shipments have been so arranged that the first consignment is likely to arrive early in 1976. The total quantity of Zinc concentrates to be imported till August, 1976 would be 30,000 MT approximately at an estimated cost of Rs. 10 crores.

Project Cost

3.22. It has been stated that with the changed scope including a 10,000 TPY lead smelter and a larger Sulphuric Acid Plant the investment at 1975 prices would be about Rs. 37 crores *i.e.*, about Rs. 31 crores towards zinc and about Rs. 6 crores towards lead.

Delay in the erection of the Project

3.23. The Zinc Smelter is likely to be commissioned in September, 1976 and the lead plant in the later half of 1977.

3.24. The Committee enquired about the reasons for delay in the setting up of the Project. The Chairman, HZL stated during evidence as follows:—

> "The Project reports for the two projects, one at Visakhapatnam (new smelter) and the other at Debari (expansion), were submitted to Government by the end of 1970. The Visakhapatnam Project Report was sanctioned in 1971 (January) and Debari Project report was sanctioned in September, 1971.
>
> Because we are putting up simultaneously two smelters one at Visakhapatnam and the other at Debari, the company took a decision that when both the sanctions were in hand, they would be able to process them together so that they can keep the identity of know-how, etc. But there was a delay of 8 months in the case of Debari project which we could not foresee. Secondly, the delay was used for land acquisition in Visakhapatnam plus tying up the long term power supply arrangement with the Electricity

> Board, Andhra Pradesh. We got advice from the Government that we should not take any major action till the agreement of the Electricity Board was finalised with the tariff. That was done in 1971. Immediately thereafter we got in touch with the Polish consultants. They came down in November and we prepared the terms of consultancy agreements and we submitted to the Government all our proposals for approval so that Visakhapatnam project work could start. But their approval did not come very quickly. There was a considerable delay. This delay was varying from 8 months to 1½ years."

3.25. Asked to why the question of acquisition of land and power supply were not looked into as soon as the Project reports were submitted to Government. The witness stated as follows:—

> "We moved for the land at once and we got the land within one month. Every thing was kept ready. But the Electricity Board which had earlier agreed to a rate of 4 paise per unit did not want to confirm it. The dialogue was continuing when Government intervened and said that no major expenditure should be committed till the electricity rates were finalised."

3.26. In regard to the steps taken by Government in order to arrive at an early settlement with the State Electricity Board the Ministry in a note submitted to the Committee have stated as follows:—

> "Afer sanction of the project, it was brought to the notice of the Ministry by HZL that the Andhra Pradesh State Electricity Board had been showing some reluctance in finalising power contract for the smelter and were asking for a higher rate than the rate of 4 paise per unit agreed to by them earlier. Accordingly, the Company was advised in August, 1971 not to make any commitment involving much expenditure on the project till the power rate was finalised. The prior finalisation of the power rate was considered essential. With a view to assisting the Company, the matter was taken up with the Chief Minister, Andhra Pradesh, in April, 1971 and also with the Planning Commission. Finally, at a meeting held in the Planning Commission on 11-9-1971, which was also attended by the Chief Minister, Andhra Pradesh, and the

officials of the State Electricity Board, it was decided that APSEB will provide power to the zinc smelter at 5.5 paise per unit at 75 per cent load-factor. The procedure for billing was further sorted out at a meeting held in the Department of Mines on 5-7-72 and the power contract was finally signed in January, 1973."

D. Expansion of the Alwaye Zinc Smelter

3.27. A 'letter of intent' was issued to M|s. Cominco Binani Zinc Ltd., in July, 1971. The Company has not so far been able to finalise proposals for implementing the expansion and it is not yet clear whether the smelter could be expanded even during the Fifth Plan period."

E. Lead Smelter—Tundoo

3.28. The Lead smelter is one of the plants taken over from the MCI. It produces refined lead of 99.99 per cent purity and silver of 99.97 per cent purity as a by-product.

3.29. The smelter consists of 3 main sections *viz.* sintering plant, blast furnaces and refining unit. The lead concentrates received from Zawar mines (situated at a distance of about 1800 Kms.) are formed into sinter in the sintering plant. The sinter is then fed into the blast furnaces to produce hard lead which in addition to lead contains impurities like iron, zinc, copper and silver. The hard lead is refined in kettles and impurities are removed. From the impurities thus removed, silver is isolated and extracted.

(i) Determination of capacity

3.30. In the absence of any Project report for the smelter which was set up sometime in 1942-43 with a small capacity, the Company estimated the realistic capacity of the plant in terms of refined lead production and found that a production of 3600 tonnes per year or 300 tonnes per month was possible if certain worn out equipment were replaced and repairs were carried out to the various ducts and pipes. In January, 1970 the Company constituted a Technical Committee under the chairmanship of prof. B. A. Altekar, Director, National Metallurgical Laboratory, Jamshedpur to examine the present working and potentialities of the Lead Smelter at Tundoo, the only such smelter in the country, and to recommend its development. The Committee assessed (January, 1971) the annual achieveable capacity of the 3 sections, as shown below, after taking into account the then prevailing conditions:—

(Figures in tonnes)

Section	Input	Output	Equivalent in terms of refined lead
Sintering Plant	Concentrates and fluxes	15,000 (sinters)	5,400
Blast Furnaces	Sinters	12,000* (hard lead)	9,000
Refining Unit	Hard lead	9,000 (fine lead)	9,000

Notes:— 1. *credited with a potential capacity of 18,000 tonnes per annum subject to improvement in working conditions.

2. The quantity of inputs for different plants was not indicated by the Committee in its Report.

3.31. In regard to overall capacity of the plant, the Committee observed that the various equipment of the smelter were not properly matched. Whereas the blast furnace and the refining unit had annual achievable capacity of 9,000 tonnes each (in terms of refined lead) the sintering plant could produce 15,000 tonnes of sinter from which 5,400 tonnes of refined lead could ultimately be produced. Under the prevailing conditions of working, the sinter plant was a real bottleneck and special attention would have to be given in making this plant more productive by modernisation and mechanisation. The Committee came to the conclusion that the blast furnaces and the refining section already had adequate inbuilt capacity to produce at least 6,000 tonnes of lead ingots yearly provided the sintering plant was modernised and mechanised replacing the present manual operations from critical areas.

3.32. The Committee recommended that the modernisation of the plant should be taken up in three phases. During the first phase immediate action should be taken towards modernisation of the materials handling, dust collection, etc. so that by 1972 the capacity was increased to handle 500 tonnes of concentrates per month (or 300 tonnes of pig lead). During the second phase a slag fuming plant of the capacity of 50 tonnes per day should be set up, while in the third phase, to be completed by 1974, the capacity of the plant should be increased to treat 1,000 tonnes of concentrates per month (*i.e.* 600 tonnes of pig lead).

3.33. The report of the Committee was considered by the Board of Directors in its meeting held on 21st July, 1971 and it was decided to implement the modernisation programme in two phases, setting up of the slag fuming plant envisaged by the Committee to be taken up in the second phase, was not considered feasible by the Company. The first phase was taken up by the Company in January, 1972 at an estimated cost of Rs. 12.40 lakhs (subsequently revised to Rs. 18.75 lakhs in April, 1972) and was scheduled to be completed by 7th May, 1973 (later on revised to August, 1973). The work was actually completed in December, 1973—January, 1974.

3.34. The Committee enquired about the action taken to remove the imbalance in the capacity of the sintering plant *vis-a-vis* the blast furnaces and refining unit of the smelter. They also enquire about the reasons for which the setting up of slag fuming plant recommended by the Technical Committee was not considered feasible. The Chairman, HZL stated during evidence as follows:—

> "The first question is about the technical committee appointed by us. We do not think much of that report. They gave many theoretical possibilities. We do not really think them worthwhile. Some were obvious. We were slightly handicapped because this smelter was suffering from want of concentrates. It had a nominal capacity of 3,600 tonnes, but the quantity of concentrates being produced in our mines could enable them to produce only 1800 tonnes of lead, *i.e.*, 50 per cent capacity.
>
> So, the non-availability of lead concentrate was the primary reason. This perhaps is why it was continually neglected. The management wanted to spend some money and put up a better show but having earned a bad reputation by doing 50 per cent capacity, the Government refused to give any budgetary support. It wanted to examine this in depth. So, this Committee was appointed. While this Committee was deliberating on this problem, I joined the organisation. I made an effort to plug all the loopholes by closing the leaking valves and repairing the burnt out tubes. Now the production has improved. We made our own scheme for renovation, which was mainly repairing the wornout part of the plant and machinery. It is a slightly out-moded system but very efficient otherwise
>
> The Committee has stated that the blast furnace has enormous capacity and the bottleneck lies elsewhere. We do

not agree with all that. Now we have got a Polish expert with us, who has spent 40 years on lead. When we sent him to Tundoo to have a first hand look at it, the first question he asked was who is the man who designed the furnace. Because, a lead smelter blast must always flare upwards. He said "some steel man must have made it wrong; this blast furnace will not work; it must be changed.' But the Expert Committee which went into it did not notice even that the blast furnace was not of the correct type. Anyway, their general recommendations are good, like more research and development.

Slag fuming is a known process in the world, but it has not been tried in India. In the plant at Vizag we will have the fuming process. If the lead locked in the slag would justify another investment, we can put up another one in Tundoo itself. We will do a commercial experiment straightaway. We had referred it to the R&D section, Sindri. The report was sent to NML. They wanted to do further research. We thought it was not worth it. That is the general position of the report.

Regarding capacity determination, now the concentrates are put into different pots, a matchstick is lighted and ultimately it flares into the sinter. The capacity of the whole plant will depend on how quickly these pots are handled by the workmen. So, fixing the capacity of the plant virtually amounts to fixing the capacity of the workers. Previously the working conditions were not good. Now productivity has improved and we are making some more changes. The Polish expert is thinking about redesigning of the pots.

We have spent some money on the first phase of the modernisation. We have restored the capacity to 3,600 tonnes. We have been able to achieve 4,000 tonnes by improving the sinter and giving motivation for the people to have better output. Now we are in the second phase where the Polish expert has made some proposals which the Board has approved. By the end of the year we hope to reach a capacity of 4,000 tonnes.

3.35. Figures of production of Lead Smelter from 1971-72 to 1975-76

(upto 30th November) are given below:—

1971-72	1768 MT
1972-73	2892 MT
1973-74	2700 MT
1974-75	4109 MT
1975—upto Nov. 1975	3264 MT

(ii) Second phase of Modernisation of the lead smelter

3.36. While the 1st phase of modernisation and expansion of the smelter was in progress Engineers India Ltd. were entrusted with preparing a project report for 2nd phase modernisation on the 4th December, 1971. After much delay EIL submitted their report on the 3rd May, 1973.

As there were several gaps in the report both technologically and otherwise a decision was taken by HZL management not to proceed with the implementation of the Project Report. Since a new 10,000 tonnes lead smelter at Vizag was on Drawing Boards with the assistance of Bipromet of Poland, HZL decided to wait for the project at Vizag to make some progress before preparing its own project report for 2nd phase expansion of the Tundoo Smelter.

3.37. Meanwhile Mr. Udracki an expert from Poland joined HZL on 17th August, 1974. With his specialisation in Lead Smelting, he guided HZL engineers in preparation of a project report for increasing the production at Tundoo. In terms of the advice available from him, it was decided that instead of confining the expansion only to 6000 TPY as recommended by the committee expansion should be to 8000 TPY which appeared to be the optimum expanded capacity in the given set of conditions prevailing in Tundoo.

3.38. Hindustan Zinc Ltd. under the guidance of the Technical Adviser from Poland prepared a Project Report for Tundoo expansion to 8000 tonnes per year. This report is in two phases:—

1st Phase:—To increase the production from 300 tonnes to 480 tonnes on receipt of certain balancing equipment and improving some of the existing facilities. This has also been largely implemented resulting in production to about 400 tonnes/month.

2nd Phase:—A detailed Project Report is in the final stage of completion for increasing the production from 480 tonnes/month to 678 tonnes/month. This second phase expansion is expected to be completed by the end of March 1976, when the capacity of the Smelter will go up to 8000 tonnes per annum.

3.39. The Committee enquired about the basis on which it was decided to entrust the job to E.I.L. and whether this work could not be done by the Company Engineers with the assistance of Polish Experts. In a note submitted to the Committee the Ministry have stated as follows:—

> "A Technical Committee under the Chairmanship of Prof. V. A. Altekar, Director, National Metallurgical Laboratory, examined the working of the Tundoo Lead Smelter and the Committee recommended modernisation of the smelter in stages. The Committee felt that the feasibility report could be prepared by an Indian consultant and that no expert assistance from abroad for preparation of feasibility report or procurement of equipment as also for the execution of the modernisation was necessary. The Committee also stated that adequate competence was available in the National Metallurgical Laboratory.
>
> 2. While examining the report, in July, 1971, the Hindustan Zinc Ltd. felt that National Metallurgical Laboratory being primarily a research organisation was not quite competent to take up the problems relating to mechanical, material handling, design lay out, etc. involved in the modernisation of the smelter. The company therefore, decided to engage a firm of consultants for preparation of feasibility report for the modernisation of Tundoo lead smelter.
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> Regarding the selection of the Indian consultant, it may be stated that during 1970-71 the question of selection of a suitable Indian consultant came up for consideration in the context of the expansion of the Debari zinc smelter and setting up of a new zinc smelter at Visakhapatnam. Under the guidelines issued by the Ministry of Industrial Development and Company Affairs (January 1969) it was necesary to associate an Indian consultant when foreign consultants, were to be engaged for a particular scheme.
>
> No competent Indian consultant was available who could be entrusted with detailed design and engineering for zinc

and/or lead plants. In this context, Hindustan Zinc Ltd./Hindustan Copper Ltd. were addressed by the Department of Mines on 4-5-1971 informing that Engineers India Ltd. had shown interest in building up a special wing for non-ferrous metals. By another letter dated 18-9-1971, it was suggested that Hindustan Zinc Ltd. may have discussions with Engineers India Ltd. with regard to their association for consultancy services for design engineering of metal production facilities.

In December, 1971, the company decided to entrust the work of preparation of feasibility|project report for the second phase modernisation of the Tundoo lead smelter to Engineers India Ltd. At this point of time the expertise available within the Hindustan Zinc Ltd. was limited, and the services of the Polish expert were available only in August 1974 when Mr. Udrycki joined the company as Technical adviser."

3.40. Asked about the total amount paid to E.I.L. including travel expenses, printing and binding of report, it has been stated that the amount of fees payable to Engineers India Ltd. is Rs. 60,000. The amount paid by way of travel expenses, printing and binding of the report comes to about Rs. 16,000.

3.41. Asked whether any responsibility for this infructuous expenditure was fixed, the Ministry in a written reply stated that—

"Though the report of E.I.L. was not accepted for implementation the exercise could not be considered infructuous inasmuch as Hindustan Zinc Ltd. and its technical personnel were able to get a better appreciation of the various problems involved."

3.42. It was, however, admitted that there was delay involved in the 2nd phase of modernisation of the smelter. The Company after giving considerable thought gaining from the Technical Committee Report, E.I.L. feasibility report, are now expanding the smelter to 8,000 tonnes capacity instead of 6,000 tonnes envisaged earlier. The balance of advantages on long term would compensate the time taken in modernising the plant.

F. Import of Zinc & Lead

3.43. Import of Zinc and lead unwrought from 1969-70 onwards is indicated below:—

	Zinc		Lead	
	Qty.	Value	Quantity	Value
Year	*Tonnes*	*Rs. lakhs*	*tonnes*	*Rs. lakhs*
1969-70	35,174	783·97	28,564	633·85
1970-71	90,987	2188·66	40,144	973·82
1971-72	68,687	1742.58	35,119	755·82
1972-73	76,802	2077·87	41,381	1010·65
1973-74	62,672	2737·56	35,067	1071·87
1974-75	66,644	5526·93	37,109	1869·67

(Source—Monthly statistics of the Foreign Trade of India—Vol. II).

3.44. The Committee enquired about the extent to which the import of zinc and lead metals worth about Rs. 215 crores during 1969-70 to 1974-75 could have been avoided with proper planning and foresight. The Ministry have stated as follows:—

> "The gestation period of a mining/smelting project is long, and with our limited expertise in the field coupled with the general financial constraints faced during the Fourth Plan period, it is felt that the import of zinc/lead could not have been avoided."

3.45. The Committee find that the Fourth Five Year Plan envisaged doubling of the capacity of two existing zinc smelters at Debari with a capacity of 18,000 tonnes per annum and the zinc smelter at Alwaye (in the private sector) having a capacity of 20,000 tonnes per annum and the setting up of a new smelter at Visakhapatnam for the production of 30,000 tonnes per year. The lead smelter at Tundoo was proposed to be modernised in order to ensure more efficient working and for increasing its capacity.

3.46. The Committee regret to note that the capacity for zinc and lead envisaged for the Fourth Five Year Plan could not be realised during that period and all the projects mentioned above spilled over to the Fifth Five Year Plan.

3.47. The Committee also note that zinc and lead metals worth about Rs. 215 crores had to be imported during the years 1969-70 to 1974-75. The Ministry have stated that "the gestation period of mining/smelting project is long and with their limited expertise in the field coupled with general financial constraints faced during the Fourth Five Year Plan period, the import of zinc/lead could not have been avoided."

3.48. The Committee do not, however, agree with the views of the Ministry as they feel that if the delays which occurred both on the part of the Ministry and Management in sanctioning and implementing the various schemes had been avoided, the imports could have been reduced substantially, if not eliminated.

3.49. In the case of expansion of Zinc Smelter at Debari, the Committee find that the Project Report which was submitted to Government in December, 1970, was approved by Government only in September, 1971 i.e. after a lapse of about 8 months. In spite of the fact that the project report was prepared by M/s. Krebs-Penarroya of France who provided technical collaboration for the original plant, the Management decided to draw two experts from M/s. Bipromet of Poland, who were the authors of the Project Report for the smelter at Vishakhapatnam, to examine the Debari Smelter to find out if the expansion of Debari Smelter could also be taken up by them after matching the existing technology of Debari with the technology of Bipromet. Taking into account the report of Polish experts, lurgi experts and the Indian Consultant (Engineers India Ltd.) in May, 1972, it was again decided to go back to M/s. Krebs to work as consultants and render engineering services for the expansion of Debari Smelter. The Committee further note that although the offers of M/s. Krebs and a draft agreement with M/s. Lurgi of Franchkfurt for the supply of Roaster technology were submitted to Government in August, 1972, their approval along with F.I.B. clearance for signing the agreement was received only in May, 1973 i.e. after a lapse of about 10 months. The Project is now expected to be completed in July, 1976.

3.50. In the case of new zinc smelter at Vishakhapatnam the Committee find that though the Government sanction was received in January 1971, the Management decided to wait till the receipt of the sanction for the Debari expansion Project so as to process both the projects together so that they could keep the identity of know-how etc. But as already stated there was a delay of about 8 months in sanctioning the Debari Project. Further delay in the setting up of the new smelter has been attributed to delay in finalising the agreement with the State Electricity Board for supply of Power. Government advised the Management not to commit any major expenditure on the Project till the electricity rates were finalisd. After protracted negotiations lasting for about two years the power contract was finally signed only in January, 1973. The construction of the smelter is now expected to be completed by September, 1976.

3.51. The Committee are informed that although a letter of intent was issued to M/s. Cominco Binani Zinc Ltd. for the expansion of their Project in July, 1971, they have not so far been able to finalise proposal for implementing the expansion and it was not yet clear whether the smelter could be expanded even during the Fifth Five Year Plan.

3.52. The Committee note that, in January, 1970, the undertaking appointed a Technical Committee under the Chairmanship of Director, National Metallurgical Laboratory, Jamshedpur, to examine the working of the Lead Smelter at Tundoo and recommend its development. The Report of the Technical Committee submitted in January, 1971 was considered by the Board in July, 1971. The Management "did not think much of the report" as it contained "theoretical possibilities" which were not considered "worthwhile". The Technical Committee felt that no expert assistance from outside was necessary for the modernisation programme and that adequate Competence was available in the National Metallurgical Laboratory. The Committee are surprised to note that the undertaking considerd the National Laboratory to be primarily a research organisation "not quite competent" to take up the problems involved in the modernisation of Tundoo smelter. If that is so, the Committee cannot appreciate the rationable of appointing the Technical Committee under the Chairmanship of the Director of the National Laboratory.

3.53. The Committee are informed that at the suggestion of the Department of Mines, the Undertaking decided in December, 1971 to entrust the work of preparation of feasibility|project report for the 2nd phase of modernisation of Tundoo Smelter to Engineers India Ltd. (EIL). They are also informed that the report submitted by EIL in May, 1973 after a delay of about 1½ years, contained several gaps technologically and otherwise and it was, therefore, not proceeded with.

3.54. The Committee cannot appreciate as to why the importance and urgency of engaging competent experts for the development of Tundoo Smelter were not realised right at the beginning and why a period of 4 years from 1970 to 74 was lost in making experiments with indigenous know-how. The delay in this regard is all the more regrettable when it was well-known that the country was spending about Rs. 10 crores a year in foreign exchange during that period on the import of lead to meet the indigenous requirements.

3.55. The Committee recommend that the Bureau of Public Enterprises should make a case study of the futile steps taken by the Management first in appointing the Technical Committee and the EIL to recommend measures for the development of Tundoo Smelter and subsequently abandoning their reports on the ground that these were not upto the mark. They would like the BPE to draw lessons from the case study and lay down guidelines for the benefit of all the undertakings.

3.56. The Committee are informed that under the guidance of the Technical Adviser from Poland HZL prepared a Project Report for Tundoo expansion to 8000 tonnes per year in two phases. The first phase raising the production to 480 tonnes/month has already been implemented and the second phase raising the capacity to 8000 tonnes per annum is expected to be completed by March, 1976.

3.57. The Committee recommend that the delays in the processing and implementation of all the 4 projects mentioned above should be thoroughly investigated by an expert committee in order to pinpoint lapses, and fix responsibility for the huge loss suffered by HZL as a result of such delays. The expert Committee should inter alia examine the following aspects in depth:

(a) The justification for the delays on the part of Government in sanctioning various schemes.

(b) the justification for asking experts of M/s. Bipromet of Poland to examine the Debari Project when it was earlier decided to entrust the job to M/s. Krebs of Paris.

(c) the justification for processing both the Projects at Vishakhapatnam and Debari together and thereby delaying the work on the Vishakhapatnam project by 8

months till the receipt of sanction for the Debari project.

(d) the justification for not proceeding with the Project at Vishakhapatnam till the electricity rates with the State Electricity Board were finalised and the extent to which the delay in finalising the agreement could have been avoided.

(e) The reason for delay in the expansion of the Alwaye Zinc Smelter in the private sector.

(f) the justification for entrusting the Project Report for the second phase of modernisation of the lead smelter at Tundoo to Engineers India Ltd.

3.58. The Committee would like the investigation to be completed within six months of the presentation of the Report and they informed about the result of such investigations.

G. Production capacity for zinc and lead during Fifth Five Year Plan

3.59. After the assessment of the demand for zinc metal by the Planning Group on Non-Ferrous Metals in August, 1968, the requirements of zinc and lead metals and other related matters were examined by the Task Force on Non-Ferrous Metals set up in June, 1972 in connection with the formulation of the developmental plans for the Fifth Plan. The Task Force assessed the requirements of zinc and lead for the period 1972—79 as follows:

Year	Zinc	Lead
	(in tonnes)	
1972-73 .	120,000	74,000
1973-74 .	131,000	80,000
1974-75 .	144,000	87,000
1975-76 .	157,000	94,000
1976-77 .	171,000	102,000
1977-78 .	185,000	109,000
1978-79	200,000	118,000

3.60. The demand for zinc and lead metals, however, showed a significant drop since 1974 or so. This seeming drop in the demand for these metals appears to be partly due to the slump in economic activity during 1974-75 and partly due to the steps taken to reduce the extent of use of these metals in certain applications (like lead sheathing in cables, lead in storage batteries) without detriment to the quality of the final product and better use of secondary metals like the use of lead from old storage batteries and zinc hydroxide sludge, zinc ash,-galvanisers' dross etc. The demand for primary zinc and lead metals, current and by 1978-79, is now estimated as follows:

	1975-76	1978-79
	(in tonnes)	
Zinc .	80,000	115,000
Lead .	35,000	50,000

3.61. The Committee enquired about the plans to increase the production capacity of zinc and lead in order to meet the entire demand indigenously and about the time when India would become self-sufficient in these metals. The Ministry have stated as follows :—

> "There are at present two zinc smelters in the country (i) in the public sector at Debari near Udaipur (Rajasthan) with a capacity of 18,000 tonnes and (ii) at Alwaye (Kerala) in the private sector with a capacity of 20,000 tonnes per annum. The smelter in the public sector is under expansion from 18,000 to 45,000 tonnes p.a. and a new 30,000 tonnes p.a. zinc smelter is being set up at Visakhapatnam. These are expected to materialise during 1976-77 when the capacity for zinc production would go up to 95,000 tonnes p.a. A 'letter of intent' has also been issued for the expansion of the other existing zinc smelter at Alwaye from 20,000 to 40,000 tonnes p.a. In case this expansion materialises the installed capacity for zinc would go up to 115,000 tonnes by the end of Fifth Five Year Plan.

(2) In the case of lead, the capacity of the existing smelter at Tundoo (Bihar) is being increased to 8,000 tonnes p.a. With the new lead smelter at Vishakhapatnam (10,000 p.a. capacity), the total availability of capacity of primary lead production will increase to 18,000 tonnes p.a. Further capacity for lead will be considered depending on the progress made in development of new mines and the availability of lead concentrates.

(3) From the above, it will be observed that the country would be, by and large, near self-sufficiency in zinc (at the project demand levels) by the end of 5th Plan (1978-79). Since there would be continuous rise in the demand of metals with the rapid industrialisation and taking into consideration the relatively limited or resources for the non-ferrous metals in the country it would be an open question whether at all points of time there will be self-sufficiency in these metals. Efforts, however, are being made to explore new areas with a view to locating deposits of the non-ferrous base metals for exploiting in the years to come.

(4) As regards lead, the gap in demand and availability is likely to remain by the end of Fifth Plan (1978-79) and with the development of some of the new lead mines like Sargipalli (Orissa), Baroi (in Rajasthan—essentially is a lead/zinc mine), this gap is likely to be narrowed during the Sixth Plan period. However, for total self-sufficiency comments made earlier for zinc would be equally valid for lead also."

H. New electrolytic zinc smelter

3.62. Hindustan Zinc Ltd. had taken up preliminary studies for construction of an electrolytic zinc smelter with an annual capacity of 1 lakh tonnes of zinc and lead smelter with a cap-capacity of 50,000 tonnes per annum at an estimated cost of Rs. 100 crores with foreign exchange component of Rs. 20 crores. The new smelter was to be fed by the concentrates to be produced out of ore raised from Rajpura Dariba and Zawarmala Baroi mines together with the concertrates likely to be available from Ambamata and Deri deposits which are being developed by the Government of Gujarat and Rajasthan respectively.

3.63. Asked about the present position in regard to this smelter the Chairman, HZL stated during evidence as follows:—

> "About large smelters of 100,000 tonnes capacity in zinc and 50,000 tonnes in lead we approached the Government and the Government made some provision in the draft Fifth Plan but financial constraints thereafter prevented us from making any further progress. We did some initial studies of requirements of infrastructural facilities, made some tentative decisions of the processes to be adopted but we have now put it on a comparatively low priority and have not made any progress about that at the present moment."

3.64. The Committee find that the Task Force on Non-Ferrous Metals set up in June, 1972 assessed the requirement of zine and lead by the end of Fifth Five Year Plan as 200,000 tonnes and 118,000 tonnes respectively. It has been stated that the demand for zinc and lead showed a significant drop since 1974. The Ministry| HZL have now assessed the demand to be 115,000 tonnes and 50,000 tonnes respectively. The Committee are not sure if these figures are based on any realistic and scientific re-appraisal of the projected demand. They would, therefore, like that a realistic assessment of the future demand should be made particularly in view of the renewed spurt in industrialisation in the country.

3.65. It has been stated that the expansion of the Debari Smelter from 18,000 to 45,000 tonnes per annum and the new 30,000 tonnes per annum zinc smelter at Vishakhapatnam are expected to materialise during 1976-77 when the capacity for zinc production would go up to 95,000 tonnes per annum. A letter of intent has been issued for the expansion of the existing smelter at Alwaye in the private sector from 20,000 to 40,000 tonnes per annum. The Committee hope that the two projects in the public sector would be completed as per schedule. They also recommend that Government should ensure implementation of the expansion scheme in regard to zinc smelter at Alwaye during the Fifth Five Year Plan so that the entire demand for zinc is met indigenously.

3.66. The Committee note that in regard to lead there is likely to be a considerable gap between the demand and the production capacity. The lead smelters at Tundoo and Vishakhapatnam together would produce only 18,000 tonnes of lead as against the demand of 50,000 as per present assessment.

3.67. The Ministry have stated that there would be continuous rise in demand of these metals with rapid industrialisation and taking into consideration the relatively limited resources for the non-ferrous metals in the country it would be an open question whether at all points of time there would be self-sufficiency in these metals.

3.68. The Committee recommend that as the gestation period of mining|smelting projects is stated to be long, Government should do planning on a long term basis in the matter of assessment of demand and take early action in creating adequate capacity to meet the demand indigenously so as to avoid dependence on imports as far as possible.

3.69. The Committee are also informed that the proposal for the construction of another electrolytic zinc smelter having a capacity of 100,000 tonnes in zinc and 50,000 tonnes in lead was originally included in the Draft Fifth Five Year Plan but due to financial constraints the project has been shelved for the time being. The Committee would like Government to take final decision in the matter keeping in view the comparative economics of importing zinc and lead and meeting the requirements indigenously.

IV

PROSPECTING AND MINING OF ZINC-LEAD DEPOSITS

A. Mining Capacity during Fourth Five Year Plan

4.1. The Fourth Five Year Plan envisaged the augmentation of ore production to 4,000 tonnes per day by increasing the production from the Central Mochia mine from about 1,000 tonnes to 2,000 tonnes per day nd raising additional 2,000 tonnes of ore by developing new mines at Balaria (Zawar area) to feed the existing and expanded Debari Zinc Smelter. Development of the Central Mochia Mine was completed in 1974 and work on development of a new 2,000 tonnes per day mine at Balaria is in progress.

4.2. As against the target of 4,000 tonnes of ore per day envisaged in the 4th Plan, actual production at the end of the 4th Plan and thereafter yearwise from the Central Mochia Mine of Hindustan Zinc Ltd. and overall ore production is indicated below:—

Target 4000 tonnes per day	Daily Average ore production from Mochia Mines	Daily Average Ore production from all the mines including Mochia
		(In tonnes)
1973-74 (last year of 4th Plan) .	1,216	1,521
1974-75 . . .	1,586	1,973
1975-76 (April-Nov., 1975)	1,872·67	2,367

4.3. In regard to the reasons for shortfall in production the Ministry have stated as follows:—

> "The main reasons for the shortfall in production are that in the case of Mochia Mines the construction of the beneficiation plant was delayed. Further, as against ten steps envisaged in the Project, only eight could actually be taken up. In the case of the Balaria Mine, development of the Balaria Mine is in progress, and it is likely to be

commissioned in 1977. It would be relevant to mention that the construction|gestation period of metalliferrous mines is long."

B. Prospecting and Mining of Zinc Lead Deposits in Zawar Region and Development of New Mines

(i) *Balaria Lead Zinc Mine Udaipur*

4.4. The feasibility reports in respect of Mochia (East and West) and Balaria Mines were prepared by the Company and submitted to Government in January, 1970. In October, 1970 Government approved an expenditure of Rs. 232.85 lakhs to be incurred during 1970-71 and 1971-72 for the completion of the essential items of work like sinking of auxiliary shaft and development of two horizons at Balaria mine in the course of preparation of the detailed project report which was required to be submitted to Government within the maximum period of 8 months, (*i.e.* by June, 1971) and for the exploratory mining at Mochia (East and West) and Zawarmala. The actual expenditure incurred during the two years amounted to Rs. 88.60 lakhs. The detailed project report for Balaria Mines envisaging a capital outlay of Rs. 12.28 crores (including foreign exchange element of Rs. 94 lakhs) was approved by the Board of Directors in August 1972 and sanctioned by Government in September, 1973 at a cost not exceeding Rs. 11.61 crores only (including foreign exchange element of Rs. 90 lakhs). No separate detailed project report for East and West Mochia Mines has been prepared as these are being treated a part of Mochia|Balaria Mines Complex.

4.5. The revised cost estimates of the Project (1975 prices) are about Rs. 21.30 crores with foreign exchange component of Rs. 1.90 crores.

4.6. It has been stated that the mine is in advanced stage of construction and is planned to produce 6,00,000 tonnes of ore per annum with maching ore treatment facilities. The project is expected to be completed in 1977-78 and reach rated capacity in 1978-79.

(ii) *Zawarmala-Baroi Mines*

4.7. The feasibility report for Zawarmala was also submitted to Government in January, 1970 who sanctioned (October, 1970) an amount of Rs. 32.50 lakhs and Rs. 47 lakhs to be incurred on exploratory mining during 1970-71 and 1971-72. The actual expenditure incurred amounted to Rs. 9.02 lakhs and Rs. 15.63 lakhs respectively. In May, 1973 Government approved the proposal of the Board of

Directors to entrust the preparation of conceptual engineering-*cum*-feasibility studies for Zawarmala and Baroi mines to M|s. Arthur G. Mckee and Company, U.S.A. at a cost of $2,34,600. The report was received in June, 1974 and the Board approved the same in September, 1974. The report provides for the production of 9,00,000 tonnes of ore, 41,310 tonnes of Zinc concentrates and 23,460 tonnes of lead concentrates per annum by 1979-80 involving a capital outlay of Rs. 37.57 crores.

4.8. The report was submitted to Government in October, 1974. In this connection, the Ministry have stated that "as a result of the detailed examination of the conceptual engineering-*cum*-feasibility report it has been decided that the Zawarmala-Baroi Project be re-examined with a view to develop in two phases *viz.* Phase. I: Development of Zawarmala mines where desired exploratory work has been carried out and the ore estimates are reasonably firm and phase II: development of Baroi Mine for which further exploratory work is considered necessary. Hindustan Zinc Ltd. has been requested to submit the revised cost estimates for development of Phase I of the Project."

(iii) *Rajpur-Dariba Mines*

4.9. Besides the above mines, the Company has also undertaken the development of Rajpur-Dariba mines for which no provision existed in the Fourth Five Year Plan. The project report for these mines (accepted upto the stage of production of concentrates) for the production of 9 lakh tonnes of R.O.M. and 1,09,500 tonnes of concentrates (88,500 tonnes of zinc concentrates and 21,000 tonnes of lead concentrates) per annum involving a total capital outlay of Rs. 19.53 crores was sent to Government in February, 1973. In October, 1973 Government sanctioned an amount not exceeding Rs. 1.98 crores for essential items of preliminary works like shaft sinking etc. for the first two years subject to the condition that further tests, additional data collection and analysis etc. required should be carried out as early as possible and firm proposals regarding the shape of the project (including firm capital cost estimates) should be submitted to Government in two years time for consideration. In March, 1974 Government approved the development of these mines and the setting up of ore beneficiation facilities at an estimated cost of Rs. 19.53 crores with a foreign exchange component of Rs. 1.25 crores subject to the condition *inter alia* that financial sanction for the actual expenditure on the project would be restricted to the ceiling of Rs. 1.98 crores for the first two years pending consideration of firmer cost estimates for the project as a whole by the Public Investment Board for which proposals should be submitted by the Company as early as possible. The Ministry stated (May, 1975) that "Appropriate proposal will be submitted by the Company during 1975-76."

4.10. In a note submitted to the Committee, the Ministry have now stated that the proposals updating the earlier cost estimates for Rajpura-Dariba are under preparation at Hindustan Zinc Ltd.

4.11. In regard to delay in the final approval of the three projects *viz*. Balaria, Zawarmala-Baroi and Rajpura-Dariba mines the Ministry have stated as follows:—

> "........feasibility reports and project reports in respect of the above mines were considered by the Government at two different points of time. The feasibility reports received from the Company in January 1970 were approved for further action in October, 1970. The project reports were received later. It may, however, be mentioned that the time taken for examination of project report is somewhat long mainly due to need to go into the details of several aspects like adequacy of ore reserves, reasonableness of cost estimates, the mining methods proposed, the financial estimates etc. Further, the examination is by a number of agencies who have to be satisfied of the different points arising from the Feasibility as well as Detailed Project Reports."

C. Requirement of Concentrates

4.12. The Debari Zinc Smelter (expanded capacity—45000 tonnes) is based on indigenous zinc concentrates whereas the private sector plant at Alwaye (capacity 20,000 tonnes) as well as the new plant of HZL under construction at Vizag (capacity 30,000 tonnes) are both based on imported concentrates.

4.13. The Committee pointed out that the gap between indigenous availability of concentrates in the foreseable future and the total requirement of concentrates for the existing smelters including Vizag was considerable. They enquired if there was an initial lack of matching between progressive development of mining and milling capacity and the development of capacity for zinc smelting. In a note submitted to the Committee the Ministry have stated as follows:—

> "In case of zinc smelter the full capacity of the project is commissioned at one go and the gestation period to realise

> the capacity is short. In case of mine the development is a continuous process and the ultimate capacity is reached by the build-up of capacity over a period. After development of the full capacity there is the long gestation period. These inherent features of mine development and setting up of the smelters generally would not permit, for a developing country, a very close matching up of smelting and mining capacities at all points of time. As a prudent policy the smelting capacity should be ahead of the ore/concentrate capacities even though for a period, the difference in the capacities may have to be utilised by smelting imported concentrates, as this would avoid stock-piling of ore/concentrates during mine development periods. As and when the mines reach the projected capacities the import of concentrates could then be adjusted suitably. This is more relevant in the context of wide gap between the demand and supply of the metal."

4.14. Asked about the steps being taken for developing the mines so as to be in a position to meet all the requirements of zinc and lead in the country indigenously. The Chairman, HZL stated during evidence as follows:—

> "So far as Hindustan Zinc Ltd. is concerned we have inherited one mine called Mochia. After that we have gone ahead with the development of another mine called Balaria. Then we have submitted reports for approval for Rajpura, Dariba, Zawarmala etc. The total capacity of the mines for which project reports have been submitted to Government comes to over 90,000 tonnes per year of metal."

4.15. He further added:

> "As and when we had located lead-zinc deposits we had not spared any time. We made Project Report and submitted to the Government., If the sanctioning process is expedited and funds released we should have no difficulty in catching up with the existing demand. If the demand goes high perhaps the gap will continue."

4.16. The Committee enquired if the capacity to manufacture concentrates from the existing mines was sufficient to last for a longer period to meet the requirements. The witness stated as follows:—

> "We must admit here that the non-ferrous metal deposits got very little attention. Proving operations is still on and within a short period of time we have got enough resources which would last for about thirty years from now on. If the process of investigation that is now going on continues and the rate of funds is as satisfactory as it is today, then we will have enough reserves to go on maintaining the smelters, based on the indigenous sources for at least fifty or sixty years."

D. Proving of Reserves

4.17. The Committee enquired about the steps being taken to find out the location of deposits of ore. In a note submitted to the Committee, the Management have stated as follows:—

> "Search for additional lead-zinc deposits in the country on a macro-scale is being carried by Geological Survey of India as well as the various State Governments on the basis of a common programme drawn up. The Central Geological Programming Board determines sector-wise priorities. HZL takes up detailed drillings of the deposits after it is *prima facie* declared as mineable and a mining lease is granted to the Company. This drilling is either done departmentally by HZL or through Mineral Exploration Corporation of India.
>
> Currently HZL's zinc mining operations are confined to only Udaipur district in Rajasthan. A second deposit at Deri in Rajasthan, is under exploitation by Rajasthan Government while a third deposit in Ambamata in Gujarat is being developed by the Gujarat Government through Gujarat State Mineral Development Corporation. A small zinc deposit is also under exploitation in Sikkim by Sikkim Mining Corporation. A new zinc deposit has been discovered at Gurubathan (Darjeeling) West Bengal and is in initial stage of proving. Being satisfied, *prima-facie*, that it may turn out to be mineable deposit, HZL has already applied for a mining lease. Geological Survey of India is the main agency under control of Government

> of India which conducts these surveys and, as already mentioned, programme for investigation is decided jointly with State Government through the aegis of Central Geological Programming Board."

4.18. The Committee enquired if it was not desirable and in the interests of the country as a whole that a bigger organisation with expertise and knowledge like the HZL should take over all the zinc-lead mines instead of the State Government doing the job here and there. The Chairman, HZL stated during evidence as follows:—

> "I entirely agree with you. Therefore, we had applied for mining lease of all mines......Mining lease was not granted to us."

4.19. The Committee regret to note that though the Fourth Five Year Plan envisaged the augmentation of ore production to 4000 tonnes per day by increasing the production from the Central Mochia Mine and by developing Balaria Mine in the Zawar region, the daily average ore production was only of the order of 1,521 tonnes, 1,973 tonnes, and 2,367 tonnes during 1973-74, 1974-75 and 1975-76 (April—November) respectively. The main reason for shortfall in production has been attributed to the delay in the development of the mines and construction of beneficiation plant for Mochia Mines. The Committee have already commented on the delay in the development of Central Mochia Mine in Chapter II of this report.

4.20. The Committee regret to note that there have been considerable delays in finalising the other mine development schemes also. They find that there was a time lag of 3½ years between the submission of feasibility report (January, 1970) of Balaria mine project and Government's approval (September, 1973) to the Detailed Project Report. In the case of Zawarmala-Baroi project though the feasibility report was submitted in January, 1970 and approved in October, 1970 the project report has not so far been finalised even after the lapse of over 5 years. Though the project report for Rajpur-Dariba mines was sent to Government in February, 1973 the final cost estimates are in the process of being updated by HZL and are yet to be approved by Government. The Committee are informed that the time taken is somewhat long mainly due to the need to go into the details of several aspects by a number of agencies. The Committee feel that project reports in respect of all the three mines have been and are being processed at a rather tardy pace. They

recommend that the Government/Undertaking should review the procedures and streamline them so as to ensure that not only are feasibility/project reports prepared expeditiously but these are also finalised without delay.

4.21. The Committee are informed that the Debari Smelter for the production of 45,000 tonnes of zinc as envisaged under the expansion plan is based on indigenous zinc concentrates while the Alwaye and Vizag Smelters for a production programme of 50,000 tonnes of zinc are based on imported concentrates. The Ministry have stated that "as a prudent policy, the smelting capacity should be ahead of the ore/concentrate capacities even though for a period, the difference in the capacities may have to be utilised by smelting imported concentrates. . ". The Committee however feel that it should be possible that all the three stages, viz., mining million and smelting, should be synchronised so that there is no underutilisation of any of the capacities at any point of time. The Committee are informed that the "total capacity of the mines for which project reports have been submitted to Government comes to over 90,000 tonnes per year of metal". They are led to the conclusion that even when all these projects are implemented, concentrates for meeting the demand of the existing three smelters (which will have a rated capacity of 95.000 tonnes of zinc) will still have to be imported. The Committee cannot over-emphasize the need for minimising dependence on imports of concentrates. The stress that Government/Undertaking should not spare any efforts to fully commission Balaria Mine according to schedule and finalise and implement the development schemes of Zawarmala-Baroi and Rajpura-Dariba mines without delay and ensure that these mines reach the rated capacity in the shortest time to feed the three smelters with zinc concentrates to produce upto 90,000 tonnes of zinc, as expected by the Undertaking, thus reducing imports of zinc concentrates to that extent.

4.22. The Committee regret to the note that non-ferrous metal deposits got very little attention in the past though the process of investigation and discovery of new deposits is now stated to be satisfactory. The Committee are informed that search for additional lead zinc deposits in the country on a macro-scale is being carried by Geological Survey of India as well as the various State Governments on the basis of a common programme drawn up. The Central Geological Programming Board determines sector-wise priorities. HZL takes up detailed drilling of the deposits after it is prima facie declared as mineable and a mining lease is granted to it.

4.23. In view of the gap between the indigenous availability of zinc concentrates and the requirements of the existing three smelters,

which may widen when smelting capacity is further expanded, the Committee feel that there is an imperative need to intensify search for additional non-ferrous metal deposits in the country. They would like the Government to draw up a plan, in consultation with the Geological Survey of India, HZL and the State Governments concerned, to accelerate the pace of work of investigation of non-ferrous deposits in the country and establish a meaning-ful coordination among all these agencies so as to ensure that all of them work according to a time-bound plan to achieve self-reliance in this field. The Committee would also like Government to examine the feasibility of bringing the Exploration & Development of zinc lead mines in the country under the control of a single organisation like HZL which has developed expertise in the field.

E. Balaria shaft Sinking and Mochia Balaria Inter-connecting Driveage work

4.24. The contract for the above work for Rs. 46.92 lakhs was awarded to M/s. Cementation Company on 9th June. 1972. The following features connected with the finalisation/implementation of the contract deserve mention:—

(i) *Award of contract on Negotiated basis*

4.25. At the meeting held on 21st July, 1971, the Board of Directors approved the scheme for connecting Central Mochia Mine with Balaria Mine by the driveage of haulage road and sinking of a lower capacity shaft at Balaria at cost of Rs. 46 lakhs. The Chairman, HZL proposed to award the contract to M/s.—Cementation Company Ltd. (who were entrusted with similar work in Central Mochia Mine in 1966) at a negotiated rate. Some of the Directors, however, took the view that "the value of the contract being about Rs. 46 lakhs procedural propriety must have precedence and tenders, therefore, should be called to avoid further criticism." The Chairman, HZL however, disagreed with this view as according to him it raised an important issue affecting seriously the future programme of the Company. As such in exercise of the powers vested in him under Article 83 of the Articles of Association of the Company he referred the matter to Central Government for decision on the 12th August, 1971. In the letter to the Ministry it was *inter alia* stated as follows:—

> "Time is the ruling factor in this work and if time schedule is not followed, production capacity of the mine will not be developed. If the work was awarded to Cementation

> Company Ltd., as an extension of the existing contract based on 1966 rates, but without any stipulation of minimum tunnelling speed, the value of the work, if Cementation Company agrees to under take it, would be about Rs. 40 lakhs. The negotiated value of the contract, with the additional stipulation of the tunnelling speed is about Rs. 46 lakhs.
>
> By call of tenders, the rates from dependable parties, if any, would not only be not lower, the enforceability of the contractual obligations will be affected by the comparative unfamiliarity of a new party with the working conditions in the Mine. The time involved would also be much higher, exclusively due to the longer launching time that any new party would inevitably seek. Furthermore, in a recent open tender for comparable work in shafs-sinking, the rates of Cementation Company of India were the lowest."

4.26. On 21st February, 1972 after correspondence Government approved the scheme and award of the contract to Cementation Company on a negotiated basis and without call of tenders at a cost not exceeding Rs. 46 lakhs to ensure timely development of the mine.

4.27. On the 13th March, 1972 M/s. Cementation Company Ltd. confirmed that they would be prepared to absorb the rise in the labour wages and other items in their offer of July, 1971 and extended the validity of their offer upto 8th April, 1972. It was pointed out that any further increase in the labour cost and any other items would be compensated to them.

4.28. The contract for the Balaria Shaft sinking and Mochia-Balaria Driveage work was awarded to M/s. Cementation Company on 9th June, 1972.

4.29. During evidence the Committee enquired if it was not desirable to invite tenders when the amount involved was heavy. The Chairman, HZL stated as follows:—

> "Normally, the answer is, 'Yes, Sir', but in this case, we took a deliberate decision not to call for tenders. The reason was that the success of the entire project was dependent on how speedily this job could be done. We made a detailed study and analysis and found that if we could get the whole thing inter-connected, that would make an enormous difference in the execution of the whole mine

development programme. We wanted speed. While tendering, they would say so many things. We wanted them to go 150—200 metres per month. To drive 150—200 metres per month in a single face has not yet been achieved anywhere in India. We tried it and we got upto 100 metres a month. By calling tenders, we might have got a penalty clause and they might run away, but we decided to have party who had a challenge in them. Cementation holds world record of 300 metres a month. We wanted them to try what they can do in Indian conditions. It is a foreign-based company, but they have all Indian employees and engineers. They took up the challenge and attained 104 metres progress in a month. Those associated with mining will know that this is excellent at 600 ft. depth. Other parties did not have experience. The only party competent to do this job was Cementation. We came to a settlement with them."

(ii) *Programme for the Completion of work*

4.30. The contract with M/s. Cementation Company *inter alia* envisaged the drawing up of a programme for completion of work to be appended to the contract. No programme for completion of the work was, however, drawn up. The Management stated (April, 1975) that the programme of the work was mutually discussed and drawn up for each quarter. The Committee enquired about the difficulty in drawing up a programme for the completion of the whole work as required under the contract. The Management have stated as follows:—

"Drawing up a programme for the entire work presupposes certain factors, like stable power supply, compressed air supply, availability of equipments (based on customs clearance permit etc.) and underground rock conditions.

The Cementation Company gave a programme for the first three months and work went on generally as per schedule for this quarter, as this did not involve use of the imported equipments.

Thereafter rock conditions changed abruptly and the anticipated equipments also did not arrive. It was also a period of shortage of explosives a feature common to the entire mining industry. No programme, could, therefore, be drawn up for this period.

> From about February, 1973, heavy power cuts and interruptions from the RSEB system commenced and normalcy was not restored till about the end of June, 1973. This was followed by a period of unprecedented rains causing heavy floods isolating the Mine for quite some time.
>
> Due to all these factors, a meaningful programme to complete the job by a particular date was impossible to draw up."

(iii) *Performance Bond*

4.31. The contract with M/s. Cementation Company *inter alia* envisaged furnishing of a performance bond for Rs. 4.49 lakhs, by the contractor within 15 days of the signing of the contract. The performance bond was, however, not furnished by the contractor. The Management stated April, 1975, that the performance bond for such work was not obviously necessary. Asked as to why the provision for the performance bond was made in the contract if it was not necessary. The Management have stated as follows:—

> "The performance Bank Guarantee given earlier by M/s. Cementation and valid upto 30th June, 1972 was with Hindustan Zinc Ltd. They requested for—its return for getting a fresh bank guarantee but by oversight it could be returned in 1973 only. At that time, in view of the work progressing satisfactorily subject to many constraints and credit squeeze having since been imposed and since certain old claims of the contractors (some of them *prima-facie* payable) were pending with Hindustan Zinc Ltd., the bond for the sum of Rs. 4.6 lakhs was not insisted upon.

4.32. It has, however, been pointed out that the reasons why the bond for a sum of Rs. 4.6 lakhs was not insisted upon, as now explained in the reply have not been found recorded. Moreover, the reasons now given differ from those intimated in April, 1975.

(iv) *Issue of Materials to M|s. Cementation Company*

4.33. The contract with M/s. Cementation Company provided for issue of materials, like explosives, high speed diesel, petrol, steel cement, etc. at stipulated prices but no detailed estimates for the work were prepared *inter alia* indicating the requirements of those materials except for steel. The Management stated (April, 1975) that materials were issued to M/s. Cementation on the recommendation of the Engineer-in-Charge who exercised proper control over the issue and consumption *vis-a-vis* the estimates. As however, detailed estimates were not prepared, there was no yardstick against which actual consumption could be watched.

4.34. The Committee enquired if it was not possible to prepare an estimate indicating the likely consumption of different materials in the case of such shaft sinking works. And if it was possible, why the estimate was not prepared in respect of materials other than steel and how far it was desirable to leave it to the engineer-in-charge to decide the quantities of these materials for issue to the contractor. They also enquired about the procedure followed in respect of the same contractor in 1966.

4.35. The Management have stated as follows:—

> "In so far as this contract is concerned, the supplies of explosives, fuel and lubricant were recoverable from the contractor and, therefore, the contract value included these costs.
>
> Other materials like, permanent track materials, were to be supplied by Hindustan Zinc Ltd. and laying cost was included in the contract.
>
> Detailed estimates showing all these components were framed and these were shown to audit on 7.4.1975. This work was also included in the approved Project Report with all details.
>
> It was not left to the discretion of the Engineer-in-charge to issue material which was not covered by the contract.
>
> Issue of materials for which recoveries were made from the contractor's bills was guided by the yard-sticks and norms of consumption based on experience of the company. The same procedure was followed for this contractor in 1966 contract."

4.36. In this connection Audit have observed (6.2.1976) as under:—

> "The question asked is about the estimates of quantities of materials mentioned in Appendix appended to the contract *viz.* high speed diesel, petrol, explosives, cement.

The estimates, if any, drawn up by the Company were not shown to Audit on 7.4.1975 nor could these be shown to Audit now."

(v) *Delay in supply of Services and Materials to the contractor*

4.37. The work was completed in September, 1974 against the scheduled date of January, 1974. As there was delay on the part of the Company in supplying various services and materials in terms of the contract, the penalty clause could not be invoked. On the other hand, in terms of the contract the contractor claimed a sum of Rs. 1.36 lakhs on account of his labour rendered idle due to Company's failure to supply the materials and services in time. A sum of Rs. 1.01 lakh has been paid so far.

4.38. The claim of Rs. 26,000 for idle wages on account of power failures and interruptions is still under examination of Management. The claim of Rs. 9,000 for idle wages has been withdrawn by M/s. Cementation.

(vi) and (vii) *Approval of the Estimates*

4.39. Though the contract with M|s. Cementation Company was approved by Government for Rs. 46 lakhs the total amount paid to the firm was Rs. 49.06 lakhs, the total expenditure on the work including the cost of free services, like power, water etc. provided in the contract amounted to Rs. 62.88 lakhs. The excess expenditure has not been regularised so far.

4.40. In this connection the Management have stated as follows:—

> "Driving of this tunnel and sinking of the shaft constituted an advance action in the interest of a fast development of the mine pending approval of the detailed project report. The award of this contract was, therefore, with the approval of the Govt. but by the time the work made significant progress the approved Project Report was also in the hands of the Company. Since this project report had, as a component, this work under consideration, the need for approaching the Govt. afresh for sanction did not arise."

4.41. The Committee regret to note that the contract for Balaria-Shaft Sinking and Mochia-Balaria interconnecting driveage was awarded to M|s. Cementation Co. Ltd., for Rs. 46 lakhs with the approval of Government on a negotiated basis without invitation of

tenders even before a detailed estimate for the work was prepared and approved. Though the contract envisaged that a programme for completion of work would be appended to it and that a performance bond for Rs. 4.69 lakhs would be furnished by the contractor within 15 days of signing the contract, neither was any such programme for completion of work drawn up and attached to the contract nor was the performance bond obtained from the contractor. The Committee are surprised to note that even the estimated quantities of materials to be supplied to contractor were not worked out though rates for supplies were stipulated in the contract with the result that there was no yardstick against which actual consumption of materials could be watched. The Committee are informed that detailed estimates were available. The Committee see no reason why if, as stated, the estimates were there, they were not available for scrutiny by Audit.* .. ..

4.42. The Committee are informed that due to non-arrival of equipment in time, shortage of explosives, heavy power cuts and unprecedented rains, no programme could be drawn up. In the opinion of the Committee, these reasons are not convincing. The Committee are of the view that a definite programme for completion should have been prepared and stipulated in the contract before it was signed. In regard to performance bond, while on the one hand the management stated in April, 1975 that a performance bond for such work was not necessary, on the other hand it was stated that performance guarantee given by the contractor which was valid up to 30-6-72 was returned to the contractor and a fresh guarantee was not insisted upon in view of the reportedly satisfactory progress and certain old claims of contractor pending with HZL. The Committee are at a loss to understand the conflicting statements made by the Management.

4.43. The Committee regret to note that, while the Management went to the extent of dispensing with the normal procedure for award of contract to M|s. Cementation & Co., in order to speed up the work, there was delay on the part of the Undertaking itself in supplying various services and materials to the Cementations. Consequently, not only was the purpose of awarding contract on negotiation, as claimed by Management, defeated, as the completion of the work get delayed but the Undertaking had also to pay an additional sum of Rs. 1 lakh to the contractor on account of labour rendered idle. .. ..

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* At the time of factual verification the Management have stated that "the material required by the Audit has been duly sent *vide* this office letter Nos.FA/Audit Review/75-76/9497 dated 14th January, 1976 and FA/Audit Review/75-76/14139 dated 17.3-76".

4.44. The Committee note that one of the reasons for awarding Balaria Shaft Sinking and Mochia-Balaria inter-connecting driveage work to M|s. Cementation Company on the basis of negotiations without inviting tenders was to do this job with speed. The Committee however, find that, while the Cementations were expected to do 150—200 metres per month in Indian conditions though they are stated to have attained a world record of 300 metres, they could attain only 104 metres in a month. Viewing the actual achievement of the Cementations against the minimum of 150 metres per month expected of them and also the reported achievement of 100 metres a month by the Undertaking itself, the Committee wonder whether the purpose behind the award of contract to the Cementations without call of tenders was fully realised. The Committee find that this project was completed in September, 1974 against the scheduled date of January, 1974 and as there was delay on the part of the Undertaking in supplying various services and materials in terms of the contract, the penalty clause could not be invoked.

4.45. The Committee recommend that the entire matter regarding the award of the contract to M|s. Cementation and Company (i) without invitation of tenders, (ii) without detailed estimate for the work being prepared and approved, (iii) not enforcing the condition regarding performance bond, (iv) not stipulating any detailed programme of completion of work and (v) not fixing suitable norms for the consumption of materials, and also delay in supply of services and materials to the contractor and justification for the extra expenditure of Rs. 3 lakhs should be investigated. The Committee would like to be informed of the result of the investigation.

F. Development of Rockphosphate Mines in Maton Area

4.46. A Project report for Maton Rockphosphate Mine prepared by the Company for the production of 600 tonnes per day of ROM and 300 tonnes per day of beneficiated rockphosphate involving a capital outlay of Rs. 234.37 lakhs was sent to Government in November, 1971 which was approved in August 1972.

4.47. On the basis of the rated capacity, the Company's requirement of rockphosphate is 135 tonnes per day which will increase to 300 tonnes per day witb the doubling of the capacity of the zinc smelter at Debari. The Company was procuring rockphosphate from the State Government at a concessional rate of Rs. 90 per tonne (excluding royalty of Rs. 4.25 per metric tonne and sales tax) F.O.R. Debari Zinc Smelter till March, 1973 With effect from April, 1973, the State Government withdrew the above concessional rate and started charging a higher rate (which ranged between Rs. 112 and Rs. 361 per tonne F.O.R. grinding plant exclusive of royalty of Rs. 4.25 per tonne and sales tax during 1973-74) in view of the grant of the mining lease of the Maton mines to the Company.

4.48. According to the project report, production of rock-phosphate from the Maton mines was expected to commence from the middle of 1972-73 and the cost of beneficiated rockphosphate was estimated at Rs. 111.86 per tonne. The Maton mines started regular production of ore from January, 1974. In regard to the related ore dressing plant it has been stated that it will have a capacity of 600 tonnes in two streams. The first stream with a capacity of 300 tonnes per day had been completed and the trial run of the first stream of the benefication plant was conducted with effect from 25th November, 1975.

As the production of rockphosphate from the Maton mines till the end of March, 1974 was not adequate to meet the requirements of superphosphate plant, the Company had to continue to make purchases from the State Government. The Company has, however, switched over completely to rock-phosphate from its captive Maton mines with effect from 1st April, 1974.

4.49. The Committee enquired about the reasons for delay in commissioning the ore dressing plant. The Management have stated that this being the first beneficiation plant to be constructed by Engineering Project (India) Ltd., a Government of India Undertaking, they had difficulty in keeping the time schedule.

4.50. The Committee regret to note that the Ministry took nearly 10 months to approve (August, 1972) the project report for Maton Rock-phosphate mine and the production of rock-phosphate which was scheduled to start from the middle of 1972-73, actually started from January, 1974, with the result that the Undertaking had to continue to make purchases from the State Government at a rate higher than the cost of rockphosphate from its own mines. The Committee find that while production of rockphosphate had started in January, 1974, the 1st stream of ore dressing plant was put on trial-run only in November, 1975. The delay in commissioning the

ore dressing Plant is stated to be due to difficulties faced by the Engineering Project (India) Ltd.,—a public sector undertaking—in constructing this plant which was the first of its type handled by them.

4.51. The Committee regret to observe that because of the delay in production from the mine the company had to incur extra expenditure in the procurement of rockphosphate.

V

PERFORMANCE ANALYSIS

A. Mining Operations

(i) Exploration and Development

5.1. The mining activities are directed towards proving of ore by exploration, development of stopes and actual raising of ore to provide the feed for the zinc and lead smelters. The Hindustan Zinc Ltd., treated the Central Mochia-Magra mines as established mine up to level IV, while Mochia-Magra-East and West and Central Mochia-Magra mines from level V and below, Balaria, Zawarmala, Rajpura-Dariba and Baroi as mines under development.

5.2. The development of Central Mochia Mine was originally scheduled to be completed in January, 1972 but it was actually completed in 1974 due to delay in the erection of the 2000 tonnes per day ball mill.

5.3. An assessment of the yearly performance and the cost thereof against the targets and the ascertainment of the balance of work to be done at the end of each year was not possible, as yearwise targets-physical and financial—for drilling, driveages, stope preparation, etc., to achieve the production according to the time schedule were not laid down in respect of the Mochia Mines.

5.4. The Chairman, HZL, however, explained the position during evidence as follows:—

> "Unlike in the coal mining, the ore body has hard rock with unpredictable behaviour. They appear in all kinds of shapes and sizes. An overall pattern is known, when the development plan is made. Then the driveage of galleries is done straight on, and as the driveage goes on from the sides, underground drills are used to continuously go on probing the ore body. The number of holes required to probe the ore body would naturally be decided by the idiosyncracy of the ore body as discovered in the sequen-

> tial operations. Therefore, laying down of a strict programme for underground drilling etc., how much drilling would be required to be done ahead, is difficult. What we do is, we lay down a programme for the total driveage to be done as a development programme so that it gives space for opening up so many stopes. Whether it is actually stoping operation, (what is equivalent to depillirring coal mining) or straight driving through the rocks, the operations involved are the same, namely blasting, loading, transportation etc. Laying down different financial targets of the driveage programme and different financial targets for the stoping programme does not carry much sense from year to year basis. What is required is that an annual programme of total development to be done and total stopes to be done has to be laid down and this is laid down by us every year, but admittedly without specifying financial dimensions.
>
> In respect of the Central Mochia Mine, the project report for the entire project was done by Penarreya experts. They had given the detailed charts from year to year. We followed those bar charts. Subsequently whatever project reports we have made for Balaria and other mines, we have made similar programmes. We have laid down annual programmes, how much development has to be done etc. We are not quite convinced that there is need for detailed financial targets. We give it in quantitative terms. It really does not make much of difference to us."

5.5. The Committee enquired if the targets for exploratory and development work with projection of results expected to be achieved and self-appraisal of work actually done were reported to the Board of Directors. The Chairman, HZL stated as follows:—

> "In the earlier years, a quantified way of reporting to the Board was not there, *i.e.* against the target of so many metres of driveage, we have done only so many metres and as a result of which would be that so much production will be there. It was mostly discussed in the past and I find that the Board resolved in the past that the progress was not satisfactory and that something should be done. That is why, some changes were made. They were alive to the issue, but quantitive reporting was wanting. This should have been done."

5.6. The witness admitted that, "it is desirable that the Board should also keep a watch so that the Management does not confront the Company with the position where there was no development work done". He added that "it should have been done. There has been a slippage on that account.".

5.7. Asked if in the absence of such compiling of reports and proper information to the Board, the development work had lagged behind, the witness stated that "if monitoring is not done correctly, there will be a lag in development. The effect is inevitable."

5.8. In a note submitted to the Committee the Management have stated that targets for mine development, quantified in terms of meterage and driveage are fixed. From January, 1975, the Board is kept informed of the progress of mine development in meters against targets fixed.

(ii) *Ore Reserves in Central-Mochia-Mine*

5.9. As mentioned earlier the Central Mochia Mine upto level IV was treated as established mine by the Company and it is from this mine that mostly the raisings have been made upto 1972-73. The table below indicates the ore reserves in Central Mochia Mine upto 1974-75 as furnished by the Management.:—

(In million tonnes)

	Proved	Probable	Possible	Total
1965-66	1·23	3·23	1·20	5·66
1966-67	1·10	,,	,,	5·53
1967-68	0·81	,,	,,	5·24
1968-69	0·65	,,	,,	5·08
1969-70	0·47	,,	,,	4·90
70-71	1·64	1·80	1·04	4·57
1971-72	1·69	2·45	0·63	4·77
1972-73	1·93	2·42	0·46	4·81
1973-74	4·64	1·85	1·03	7·52
1974-75 (upto 1-1-75)	5·53	1·89	1·08	8·50

5.10. It will be seen that while 'probable' and 'Possible' reserves remained static upto 1969-70, there was no addition to the proved reserves. The proved reserves came to a low level at the end of 1969-70.

5.11. In April, 1975 the Ministry stated that, "The mine development activities undertaken up to 1969-70 were not indicated each year in the form of addition to the reserves of ore, but it was done after a couple of years. It would be seen from the 'proved' ore reserves during 1970-71 that the additions to the reserves of ore during the period from 1965-66 to 1969-70 were reflected in the 'proved' ore reserves from this year..........Similarly, the additions to the reserve of ore during the years 1970-71 to 1972-73 were reflected in the figures of the 'proved' ore reserves for 1973-74........Thereafter, the additions to the reserves of ore are being reflected every year."

In this connection Audit has observed as follows:—

> "It will appear from the above that the system of documentation was not complete up to 1973-74. There seems to have been no system of setting the task in physical and financial terms for exploratory and development work with projection of the results to be achieved, proper documentation of the efforts made and the results achieved and periodical self-appraisal for evaluating the results of the efforts with reference to the task set for the Management."

In May, 1975 the Ministry further stated that:

> "Migration from the possible category to probable category or probable to proved is not always positive. Therefore, there cannot be any likely relationship between the meterage drilled or driven with the ore reserves proved. ......In base metal mining, particularly in ore bodies of the type that are being handled by HZL, ore reserves cannot be treated as proved unless the degree of confidence crosses 90 per cent. Several checks and cross-checks including sampling, drilling and exploratory driveage have to be carried out before a figure of proved reserves is arrived at. However, the Ministry agreed that "A self assessment of the progress of exploratory work should be reported to the Board of Directors of the Company by the Management every year."

5.12. In a note submitted to the Committee the Management stated that "a self-assessment of the progress of exploratory work will be submitted to the Board of Directors in due course as desired by the Ministry.

5.13. The Committee enquired as to why additions to reserves were not being reflected every year till 1973-74 and about the reasons for delay in submitting a self-assessment of the progress of exploratory work to the Board of Directors. The Management have stated as follows:—

> "From the every scheme of things it is not possible to know the additions to reserves. Access to the deeper portion has to be first established before proving operations can start.
>
> On a macro scale, however, reserves were being added continuously at different deposits. As all project reports were examined and approved by the Board, there is an inbuilt system of keeping the Board informed of the reserves added for the purpose of corporate level information. When production commences with consequent depletion of proved reserves a system of keeping the Board informed of the resultant position will be introduced."

(iii) *Daily average production—Actual* vis-a-vis *targets*

5.14. At the time of acquisition of the undertaking, the production of ore from Central Mochia-Magra Mines (which were the only mines under production) was 500 tonnes per day. The Management decided (August, 1966) to step up the production from these mines to 750 tonnes per day and raise additional 260—300 tonnes per day by developing the Balaria mines (where the zinc content of ore is roughly double that of Mochia-Magra mines) within 6 months, thereby bringing the overall production to 1,000 tonnes per day by February, 1967. These targets were subsequently revised in June, 1967 and December, 1968. The actual production as compared with the revised targets is indicated in the table below:—

Actual production vis-a-vis *June* 1967 *and December* 1968 *targets*

(Tonnes per day)

	July, 1967	December, 1967	July, 1968	December, 1968/ January, 1968	July, 1969	December, 1969/ January 1970	July, 1970	December 1970/ January, 1971	July, 1971	January, 1972
1	2	3	4	5	6	7	8	9	10	11
Established Mines—Mochia-Magra Mochia-Magra (Up to level IV)										
Targets: June, 1967 .	600	700	600	600	600	500	300	..	..	
December, 1968	..	..	..	600	600	450	450	300	200	..
Actuals: . . .	467	474	501	490	452	542	529	438	232	286
Mines under development Mochia-Magra (level V below)										
Targets: June, 1967 .	100	100	350	350	500	1,000	1,700	2,000	..	..
December, 1968		..	..	100	100	250	500	1,000	1,500	2,000
Actuals:		42	60	85	124	121	149	228	554	546
Balaria:										
Targets: June, 1967 .	200	300	300	300	300	400	500	500	..	..
December, 1968 .	..	..	..	150	200	250	250	250	250	250

1	2	3	4	5	6	7	8	9	10	11
Actuals . . .	53	101	99	109	167	232	236	250@	302@	302@
Rajpura-Dariba										
Targets: June, 1967 .	..					..	..	..	..	..
December, 1968				..		100	150	150	150	150
Actuals									..	..
Zawarmala:										
Targets : June, 1967				50	100	200	300	300	..	..
December, 1968							50	50	100	100
Actuals .									16	
Total										
Targets : June, 1967 .	900	1,100	1,250	1,300	1,500	2,100	2,800	2,800	..	..
December, 1968	..	..	..	850	900	1,050	1,400	1,750	2,200	2,500
Actuals	520	617	660	684	743	895	914	916	1,104	1,134
Percentage of total actual production to targets	58	56	53	81*	83*	85*	65*	52*	50	45

NOTES: 1. *Worked out with reference to December, 1968 targets.
2. The above figures represent daily average production of the following six months.
3. @Includes production of East and West Mochia-Magra Mines.
4. The schedule of daily target of average production from July, 1972 onwards is not available with the Company.

5.15. It will be seen that the targets for the expected level of production from the mines under development were brought down in December, 1968 as compared with those fixed in June, 1967. The actual daily average production from the established mines as well as the mines under development fell short of the expected level of production till December, 1969. However, from January, 1970 onwards, the daily average production from the established mines exceeded the revised targets (as fixed in December, 1968). The actual production from the mines under development was still less than the targets except in the case of Balaria mines (including East and West Mochia Mines) from July, 1971 onwards. The reasons for shortfall in production were not analysed by the Management during 1966-67 and 1967-68. The fall in production from Machia-Magra mines (upto level IV) during 1968-69 was, however, attributed (November, 1968) mainly to 'go slow' tactics during April and May, 1968, acute shortage of water during June-July, 1968 and frequent trippings of power.

5.16. The reasons for shortfall in production were again not analysed during 1970-71. On being asked to clarify the reasons for shortfall in production during 1969-70 and 1971-72 as compared with the schedule of daily average production, the Management stated (February, 1974) that "....during exploration and development of mines no targets of production are fixed and as such the question of non-achievement of these targets should not normally arise."

5.17. In this connection it may be mentioned that ore was being raised during these years both from established mines and mines under development and the schedule of daily average production from both the categories of mines had been fixed in December, 1968.

5.18. The Committee pointed out that the schedule of daily target of average production from July, 1972 was not available with the Company. The Chairman, HZL, explained the position as follows:—

> "This is not really a schedule of daily average production because when Balaria mine comes in a production, this question can be raised. I would also say here that

> Balaria mine is only a developmental mine and, as in all these developmental mines, there is some incidental ore production. Laying down a target for the incidental ore is not done as a forecast may not be correct. That it was done in anticipation of getting some ore was because certain facilities or arrangements should be kept ready. Analysis was not done because ore may not be there during developmental stage of mine."

5.19. It has been pointed out that the schedule of daily target of average production from July, 1972 onwards was not available with Hindustan Zinc Ltd. In this connection the witness explained the position as under:—

> "In fact, the schedule of daily target of production at any time was not available. Firstly the company never prepared any such schedule of daily target of production.
>
> What is shown in Audit Report is known as 'conceptual thinking' of what we should do in future. If you will kindly see the Chart you will find that it refers to a production in 1968 from Rajpura, from Dariba, from Balaria and from Zawarmala etc. some of which were not even in one lease. This is a perspective planning to indicate what could be the possible picture after four or five or six years. That is not a daily target of production or schedule of production. If this kind of target or schedule of production is required, we have been preparing it every year. Even now we have got upto 1980-81."

5.20. In regard to the analysing of reasons for shortfall in production the witness stated as follows:—

> "The question of analysing the reasons for the shortfall in production did not arise. We have always analysed the targets of running mines. For them targets have been fixed and the analysis for variations is done on a daily basis from various reports such as daily, weekly, or monthly reports that we get. This is a continuous process."

(iv) *Ore Raising from different levels of Central Mochia Mines*

5.21 The Management furnished the following break-up of ore raising from Central Mochia mines during 1971-72 to 1974-75.

(Figures in tonnes)

Year		Upto level IV	From level V and below	Total
1971-72	. .	1,66,693	73,680	2,40,373
1972-73	. .	2,16,116	54,408	2,70,524
1973-74	. .	1,35,534	2,29,386	3,64,920
1974-75	. .	1,53,983	3,22,010	4,75,993

5.22. It will be seen that during 1971-72 and 1972-73 major portion of the ore was raised from levels I to IV. The figures of actual average daily raisings, however, indicate that the raisings from level V and below were more than that from levels I to IV.

5.23. In May, 1975 the Ministry stated as follows:

> "The annual production figures distributed between the upper levels and lower levels are not indicative of the quantum of actual ore drawn from these horizons. Central Mochia Mine has got three outlets for drawing the ore out of the Mines—No. 6 adit and the main shaft interconnected by an 'auxiliary shaft. Any ore which ultimately emerges with the surface from the 6th adit is treated as if drawn from upper levels while the ore coming out from the main shaft is treated as if drawn from the lower levels. In actual day-to-day mining practice the ore has to be taken out by the most convenient route and every often the ore which should have normally come out from the main shaft was transported out of the mine through the 6th adit *viz.* the auxiliary shaft. There are also instances where ores from the upper levels were chuted down to lower levels for being hoisted by the main shaft."

Audit has observed as follows:—

> "It would be seen that a proper system of documentation indicating correctly the raisings of ore from different parts of the mine was not also adopted."

5.24. The Committee enquired as to how the quantum of ore available in different levels of the mine was assessed so as to enable the Management to plan further operations of development as well as mining. The Chairman, HZL stated during evidence as follows:—

> "Not only have we got records of every level but we have also records of every stope and that too on day to day basis."

5.25. Asked as to why the records were not available to Audit, the witness stated as follows:—

> "I will make an enquiry, if some records were not deliberately made available to Audit, I tender apology".

(iv) *Actual Raisings*

5.26. The actual production of ore from different mines during 1966-67 to 1974-75 is given below:—

(Figures in tonnes

Year	Mochia-Magra	Balaria	Zawarmala	Targets	Total
	Actuals	Actuals	actuals		Actuals
1966-67	140072	13519	—	—	153591
1967-68	151840	22186	—	—	174026
1968-69	162764	28840	—	—	191604
1969-70	174396	55553	—	—	229949
1970-71	198214	71792	—	280,000	270006
1971-72	240373	76164	2324	300,000 (revised from 343,300)	318861
1972-73	270524	81358	—	500,000	351883
1973-74	364920 (Original target-480000)	84186 (Original target 96000)	7234 (Original target 24000)	500,000 (revised from 600,000)	456340
1974-75	475993 Target-500000	105879 Target-100000	9994 —	600,000	591866

5.27. The shortfall in production during 1972-73 was attributed by the Management (January, 1974) to stoppage of power and water, delay in receipt of imported equipment and acute frequent power trippings.

5.28. The production of ore during 1973-74 was stated by the Management to have been affected by problems created by power cuts and floods and during 1974-75, it was mostly on account of power interruptions.

5.29. Audit has observed that Hindustan Zinc Ltd. did not have the system of preparing properly annual production budget up to 1971-72. In this connection the Chairman, HZL however, stated during evidence as follows:—

> "The targets of production have been laid down quite clearly from 1969-70 onwards and from 1971-72, the style of reporting has also changed. While fixing the targets for 1969-70 and 1970-71, the Management decided the targets from the top to downwards. That means, the higher level Management decided the targets and imposed them on the mines. Naturally, there were the usual variations. From 1971-72 onwards, the targets have been fixed after due consultation with everybody and taking into account all constraints. A periodical review has been done. I have a complete chart of even the dates of meetings, the Circular Nos. and so on, for each year from 1971-72 onwards. I have the details in regard to each item, not only ore, but in regard to Zinc concentrates, Zinc ingots, Cadmium, Lead, Silver and Super Phosphate. Targets have been laid down in clear terms."

5.30. The Committee pointed out that annual targets for raising ore from different mines were not fixed, before 1973-74. In this connection the witness stated as follows:—

> "Till 1973-74, we did not have many mines, we had only Central Mochia Mines. The Balaria mines came into existence as a production mine only in 1972-73 onwards. The Balaria mine is even now under development. Now we are in a position to project the production targets of different mines."

5.31. During evidence of the representatives of the Ministry the Committee pointed out the various lacunae and deficiencies in the system of Central mining operations and enquired as to how it was possible for the Ministry to exercise proper control in the absence of proper documentation.

5.32. The additional Secretary of the Ministry stated that the "methodology" or "weapon" of the Ministry/Department "to exercise control on the working of a mining Corporation should not descend to such documentation. They should pick the right managers, if the right managers are not there, it is better to sack them. It is the mine Managers' responsibility and he must discharged it." The witness further stated that "the first and most important step that the Government took in May, 1970 was to combine the Chairmanship and Managing Directorship and spare for this difficult mine, one of the leading mining engineers available within Government employment anywhere in India......If Government had been satisfied with the manner of control about mining maturity of the Management prior to 1969-70, surely Government would not have made such a drastic change."

5.33. The Committee find that apart from the delay in the development of the Central Mochia Mine due to delay in the erection of the 2000 tonnes per day mill (which has already been commented upon by the Committee elsewhere in the Report), the system of control in vogue on mining operations was deficient in as much as (i) year-wise physical targets for the exploratory and development work and the actual achievement there again wre not reported to the Board of Directors till January, 1975. It has been admitted that "there has been slippage on that account." It has also been admitted that "if monitoring is not done correctly there will be lag in development." (ii) in the absence of proper documentation, the mine development activities were not indicated in each year in the form of additions to different categories of reserves of ore till 1973-74. Periodical self-appraisal of exploratory and development work indicating the additions to the ore reserve was also not reported to the Board of Directors.

5.34. The Committee fail to understand as to how an effective control could be exercised by the Ministry on the working of the Corporation in the absence of such vital information.

5.35. The Committee feel that fixing of year-wise targets for different stages of mining operations and the periodical self-apprial-sal of the results achieved are the basic functions of the Management. They stress that the Management should ensure proper documentation and maintenance of records, and keep the Board of Directors regularly informed about the self-assessment of the progress of exploratory and development work to enable it to review the achievements vis-a-vis targets and advise remedial action.

5.36. The Committee are informed that in order to streamline the Management the Ministry combined in May, 1970 the Chairmanship and Managing Directorship by appointing an expert mining engineer.

It has been admitted that "if Government had been satisfied with the manner of control about mining maturity of the Management prior to 1969-70, surely Government would not have made such a drastic change." The Committee recommend that in the light of the past experience the Ministry should evolve a system of keeping themselves constantly in touch with the progress made by the Management in various fields so as to take prompt remedial measures, whenever serious lapses/deficiencies come to their notice.

B. **Beneficiation Operations (Mills)**

5.37. As already mentioned in Paragraph of the Report the capacity of the Mill inherited by HZL from the Metal Corporation of India was 475 tonnes per day which increased to 975 tonnes per day from September, 1976 after completion of a new Ball Mill (having a capacity of 500 tonnes per day). This capacity was further expected to increase to 2,975 tonnes from October, 1971 when another mill of 2,000 tonnes capacity was scheduled to be completed (actually completed in three phases up to 1,000 tonnes in July, 1972, 1,500 tonnes in September, 1972 and 2,000 tonnes in April, 1973).

5.38. The following table indicates the rated capacity of the mills, the quantity of ore treated, the short-fall in ore treated, the concentrates produced and the metal recovery since the formation of the Company:—

Year	Rated capacity (475 tonnes upto Dec. 1967 and 975 tonnes thereafter) (MT) (a)	ROM produced (M.T.)	ROM treated (M.T.)	Shortfall in ROM treated (2—4) (M.T.)	% of shortfall to rated capacity (Col. 5 to 2)	% of metal in feed		Total Metal in feed	
						Pb%	Zn%	Pb%	Zn%
1	2	3	4	5	6	7	8	9	10
Old Mill 1965-66 (11/65 to 3/66)	59,375	62,485	53,230	6,145	10·34	..	..	..	..
1966-67	1,42,500	1,53,591	1,51,060	(+)8,560	..	2.8	4·22	4,230	6,375
1967-68	1,80,000	1,74,026	1,74,005	5,995	3·33	1·77	4·2	3,080	7,308
1968-69	2,92,500	1,91,604	2,09,650	82,850	28·32	1·44	3·88	3,019	8,134
1969-70	2,92,500	2,29,949	2,41,945	50,555	17.28	1·24	3·8	3,000	9,194
1970-71	2,92,500	2,70,006	2,74,695	17,805	6·08	1·1	3·62	3,022	9,944
1971-72	2,92,500 (c)	3,18,861	2,83,620	8,880	3·03	1·38	3·54	3,914	10,040
1972-73	2,92,500 (b)	3,51,883	2,90,580	1,920	0·65	0·98	3·52	2,843	10,228
1973-74	2,47,500	4,56,340	1,95,446	52,054	21·04	0·81	3·92	1,599	7,663
1974-75	2,70,000	5,91,866	2,71,755(+)	1,755	0·65	0·84	3·30	2,284	9,214

Mill (2000 tonnes capacity)								
1972-73 . . .	2,75,500	60,993	2,14,007	77·82	2·5	3·29	1,525	2,067
1973-74	5,87,500	2,68,827	3,18,673	54·24	2·12	3·13	5,699	8,414
1974-75 . . .	6,00,000	3,56,835	2,43,165	40·53	2.01	3·04	7,172	10,860

(a) Rated capacity calculated on the basis of 300 working days although the Mill worked for longer period in a year *e.g.* 325 days in 1966-67, 316 days in 1967-68, 320 days in 1971-72 etc.

(b) 300 tonnes ball mill utilised for test of Maton rock-phosphate from October, 1973 to June, 1974.

(c) 500 tonnes per day ball mill was out of order from three months from June, 1971 due to burning of 400 H.P. motor.

(+) indicates excess.

	Concentrates Produced		Metal in concentrates produced		% of metal recovery		% of Lead concentrate to ROM treated	% of Zinc concentrate to ROM treated	% of concentrate to ROM treated
	Pb.	Zn.	Pb.	Zn.	Pb%	Zn%			
1	11	12	13	14	15	16	17	18	19
Old Mill									
1965-66 (11/65 to 3/66)	..	..	..	..	..	..	..	..	..
1966-67	5,242	9,548	3,800	5,223	89·8	81·9	3·47	6·32	9·75
1967-68	3,765	11,204	2,622	6,039	85·1	82·6	2·16	6·44	8·60
1968-69	3,462	12,523	2,472	6,767	81·9	83·2	1·65	5·98	7·63
1969-70	3,600	14,350	2,440	7,505	81·6	81·6	1·49	5·93	7·42
1970-71	3,514	15,978	2,415	8,235	79·9	84·8	1·28	5·82	7·10
1971-72	4,765	16,098	3,445	8,645	88·0	86·1	1·68	5·68	7·36
1972-73	3,325	15,808	2,400	8,440	84·3	82·5	1·14	5·44	6·58
1973-74	1,804	12,164	1,341	6,926	84·0	90·3	0·92	6·22	7·14
1974-75	2,736	14,533	1,942	7,909	85	85·8	1·01	5·35	6·36
New Mill									
1972-73	1,718	2,708	1,255	1,465	82·3	73·0	2·82	4·44	7·26
1973-74	6,543	12,911	4,828	7,033	84·7	83·6	2·43	4·80	7·23
1974-75	8,812	16,780	6,276	8,959	87·5	82.5	2·47	4·70	7·17

NOTES:—1. There was pre-ordinance stock of about 60,000 tonnes of ore at the time of takeover.

2. The ball mill of 500 tonnes per day capacity operated regularly from December, 1967 although it had been completed in September, 1966.

3. As the Zinc Smelter at Debari went into partial production only in January, 1968 the Zinc concentrates produced during October, 1965 to December, 1967 were stocked by the Company without any further processing except for some quantity sold to M/s. Cominco Binani.

4. The new mill is of 2,000 tonnes capacity per day and was completed in three phases i.e. upto 1,000 tonnes in July, 1972, 1,500 tonnes in September, 1972 and 2,000 tonnes in April, 1973.

5. For the purpose of calculation of the rated capacity, month following the month of commissioning of the ball mills, etc. has been taken as the month from which regular production started.

5.39. Table below shows the capacity utilisation of the mills from year to year:—

1966-67	100%		1972-73	61·95	
1967-68	96·67%	500 T Mill added	1973-74	55·61%	New mill added
1968-69	71·68%		1974-75	72·25%	
1969-70	82·72		1975-76 (Upto November, 1975)	77·34%	
1970-71	93·92				
1971-72	96·97				

5.40 The quantity of ROM treated was less than the rated capacity of the mills except in 1966-67 and 1974-75 and also the quantity available (including opening stock) for beneficiation. The shortfall in the quantity treated *vis-a-vis* the capacity of the mills has been attributed to the following reasons:—

1965-66:

(1) Power shortage due to non-availability of Light Diesel Oil (2) Shortages of water (3) Changing of liners and other maintenance jobs (4) Shortage of copper sulphate.

1967-68:

(1) Power shortage/ failure (2) Ore shortage (3) Shortage of bundies (i.e. 'U' shaped wagons used for transportation of ore in mines) (4) Major maintainance and renovation work, change of liner, gyratory crusher foundation work etc. (5) Strike for about 10 days.

1968-69:

(1) Shortage of ore (2) Shortage of water (3) Power failure/shortage (4) Maintenance work.

1969-70:

(1) Shortage of ore (2) Shortage of water (3) Power failure/shortage (4) Maintenance work and accident in mines.

1970-71:

(1) Shortage of ore (2) Shortage of water (3) Power shortage/failure (4) Maintenance work (5) Breakdown of Cone crusher in mill No. 3 and also in crushing floatation sections.

1971-72:

Largely attributable to the power failure and power trippings.

1972-73:

(Old Mills) (1) Shortage of power (2) Frequent power trippings and (3) Maintenance of machine .

1973-74:

The production of concentrates was stated by the Management to have been affected by problems created by power cuts and floods.

5.41. In regard to shortfall in the utilisation of capacity during 1974-75 the Management have stated as follows:—

> "There was no overall shortfall in the total production of concentrates which was 42,861 tonnes against a target of 43,000 tonnes. The shortfall in the production of zinc concentrate (31,313 M.T. against the targetted production of 35,000 tonnes) is due to lower zinc content in ore (3.2 per cent as against expected metal content of 3.4 per cent).
>
> The power interruption was not the only cause which affected the utilisation of the New Mill. There was not enough ore to feed the new mill. Between the old and the new mills the total ore taken out from the mines has been treated in full in addition to some ore taken out of stocks. (Total treatment 6,28,590 tonnes including 36,724 tonnes from stock). It is necessary for the overall mines development to have beneficiation plant capacity in excess of mine production capacity. Overall milling capacity utilization was 72 per cent."

5.42. So far as shortfall in production attributable to shortage of ore is concerned, it will be seen from the table on page 98 that the quantity of ore available was in many years more than the quantity treated in the mills. The Management have explained (November, 1973) that the ore was lying in different dumps and required to be transported for being fed into the mills. At times transportation of ore was possible only after secondary blasting and/or preliminary crushing. Therefore, a limited quantity could be drawn from the dumps for treatment in the mills.

5.43. Asked of this difficulty could not have been overcome and better utilisation of milling capacity ensured, the Management have stated as follows:—

> "The under utilisation of the mill was significant only in 2 years (1968-69 & 1969-70) when efforts to transfer ore

from stocks for treatment were made with limited success. A larger received bunker was constructed along with renovation schemes of the mill in 1970-71 after identifying various bottlenecks."

5.44 In regard to shortfall in the utilisation of capacity the Management have *inter alia* that "as stated a matter of policy the milling capacity, should be more than the mining capacity." It has been further stated as follows:—

> "From the year 1965-66 to 1971-72, the milling capacity has been fully utilised except during the year 1968-69 and 1969-70. The new 500 tonnes ball mill went into commission in the old mill by end of 1967 and, therefore, an excess milling capacity is visible for the year 1968-69 and 1969-70. With the continuous increase in production from the mine, the extra milling capacity was fully utilised in 1970-71 and 1971-72.
>
> Commissioning of the new Mill in 1972-73 (in part) and 1973-74 (fully) raised the milling capacity well beyond the then instantaneous mining capacity. It may be recalled that the Company itself had at one stage been considering whether to build a complete 2000 tonnes mill or to merely expand the old 975 T. mill by a 1000 tonnes mill. A deliberate decision was taken at that stage to build a 2000 tonnes mill so that the total milling capacity available would be 2975 tonnes which was much beyond the approved Project report production programme for the mines. Figures for 1974-75 and 1975-76 (upto 30th November, 1975) would indicate that the extra milling capacity was being progressively utilised and the time had come when additional milling capacity should be planned."

5.45 It has been added that the second important reason for under-utilisation was power trippings. Shortage of water was also one of the important reasons.

5.46. Asked as to the factors which were avoidable in nature, it has been stated that marginally better utilisation could have been obtained by timely action in tapping new sources of water, procurement of copper sulphate well in advance and replacement of some worn out machinery which took heavy toll of maintenance attention.

5.47 The Committee enquired about the steps taken to overcome the difficulties/constraints the Management have stated that these difficulties have been handled after commissioning of the Tidi dam for water supply, renovation of the old Mill, replacement of some of the equipment and planned purchase of reagents like Copper Sulphate."

C. Recovery efficiency of concentrates

5.48. It will be seen from the Table at pages 174-76 that the percentage of concentrates produced to the quantity of ROM treated (Old Mill) has shown a declining trend except in 1971-72 when there was slight improvement over 1970-71. The Management explained in October, 1971 that the gradual decline in the production of concentrating was on account of the fact that the mines had been working for the last more than 20 years and apart from the selective mining resorted to by the MCI, the grade of ore at lower horizons was going down with consequent fall in metal content.

5.49 There was no set pattern between the recovery efficiency and the richness of ore. The recovery efficiency of the old mill varied from 81.6 per cent to 90.3 per cent in the case of zinc and 79.9 per cent to 89.8 per cent in the case of lead. In the new mills the corresponding percentage were 73 per cent to 83.6 per cent and 82.3 per cent to 84.7 per cent against the expected recovery efficiency of 85.6 per cent in the case of zinc and 88.3 per cent in the case of lead indicated in the report of M/s. Penarroya. The variations were attributed by the Management in January, 1975 to the following reasons:—

(i) Old Mill

- (a) Power interruption leading to loss of slurry due to spillage.
- (b) Oxidisation in old stock of ore and in the ore drawn from upper levels connected with ancient workings.

(ii) New Mills

- (a) The mill was put into operation in October, 1972 and only 60,933 tonnes of ore was treated in the first 6 months of operation. In any new plant it takes some time before the process gets stabilised and during the stabilisation of the process the recovery tends to be low as the metal escapes into the tailings. It will be observed from the table that in the year 1973-74 the recovery improved.
- (b) Power interruption leading to loss of slurry due to spillage.

In May, 1975, the Ministry further stated as follows:—

> "Recovery efficiency depends both in the metal content in the input and also metal content desired in the concentrates. If the ore becomes leaner there would be lower recovery if the same concentrate quality is sought to be maintained. Even otherwise, rich concentrates generally indicate a lower recovery but HZL has to go in for rich concentrate as the roaster is designed for it. Only when the drop in the mill-head grade of ore and availability of total concentrate start conflicting, a deliberate decision is taken to lower concentrate results in the interest of better recovery."

The number of power interruptions in the Zawar Mines during the years 1971-72 to 1973-74 was as follows:—

1971-72	313
1972-73	291
1973-74	315

5.50 The Ministry have stated (May, 1975) that "In view of the erratic behaviour of the ore in terms of the metal content which, on occasions are reaching uneconomic levels the Management is already considering the possibility of introducing an one-line computerised analyser so that instantaneous adjustments in feeds and reagents can be made."

5.51 In this connection the Management have stated that:

> "This is highly sophisticated and costly equipment of imported origin. Its introduction has to be proceeded by several studies which are still on."

5.52 The Committee enquired about the remedial measures taken to avoid adverse effect of power interruption on recovery efficiency of concentrates in the Mill. The Management have stated as follows:

> "The matter was taken up by the Company at all levels for improvement in power interruptions. The Hindustan Zinc Limited and the Department of Mines had requested the Rajasthan State Electricity Board and the State Government to shift the under frequency Relay set to which the

MP State Electricity Board had agreed. The matter is being continuously pursued for improving the situation.

However, R.S.E.B. has established a 132 KVA sub-Station at Zawar Mines. This has, to some extent, contributed to lowering the frequency of power interruptions and trippings. Also to avoid adverse effects of longer duration power failure, three stand by generating sets to meet emergency requirements of essential services are being imported from Russia by Hindustan Zinc Ltd."

5.53 Explaining as to why the action to arrange generating sets could not be taken earlier, the Management have stated as follows:—

"Emergency generating sets are being now installed with a view to keep essential equipments and services running. The capacity of the sets will not be enough to keep the milling and mining operations going. Smaller generating sets were available in the past for maintaining these essential services on a smaller scale of operation. The main adverse effect of power interruptions or power cuts leading to loss of ore production and milling capacity cannot be overcome by stand by generating sets. Contintiy of power supply is a must to ensure proper functioning.

5.54. The Committee note that a 500 tonnes Ball Mill went into operation towards the end of 1967 raising the milling capacity to 975 tonnes per day. The milling capacity was further augmented to 2975 tonnes per day when another Mill of 2000 tonnes capacity per day was set up in 3 phases (upto 1000 tonnes in July 1972, 1500 tonnes in September 1972 and 2000 tonnes in April, 1973.) They find that since the commissioning of the new Mill in 1972-73, the milling capacity has been in excess of the ore available. In 1974-75, nearly 28 per cent of the milling capacity could not be utilised for lack of ore. The capacity utilisation is however stated to have reached 78 per cent, in 1975-76 (upto November, 1975). The undertaking has stated that "as a matter of policy the milling capacity should be more than the mining capacity" and the extra milling capacity is being progressively utilised. The Committee are not sure as to what should be the maximum gap between the milling capacity and mine production capacity and what should be the optimum time during which the development of mine production should catch up with the milling capacity. They suggest that these aspects of mining and milling capacities may be examined in depth and an integrated time chart worked out as an aid to the Management in co-ordinating the com-

mencement and completion of the various units of any future smelter complex so as to ensure that the units come up in proper order and the time lag between the completion of the various units is the barest minimum to avoid any loss on account of idle capacity for long period. They would, however like to reiterate that the ideal policy should be to synchronise, as far as possible, the development of mines and the installation and commissioning of the milling and smelting capacities and they need hardly stress that undertakings should strive to achieve this ideal in the future projects.

5.55. The Committee are informed that shortage of water and maintenance of machines and shortage of copper sulphate have been responsible for the shortfall in the quantity of ore treated in the Mills. The under-utilisation of the mill in 1968-69 and 1969-70 is stated to be due to difficulties of transport of ore from dumps to the mills. A large receiving bunker was constructed along with the renovation scheme of the mill in 1970-71 after identifying various bottlenecks.

The undertaking has admitted that marginally better utilisation could have been obtained by timely action in tapping new sources of water, procurement of copper sulphate well in advance and replacement of some worn out machinery which took heavy toll of maintenance attention. The Committee feel that with proper planning and arrangement of equipments and maintaining an adequate buffer stock of copper sulphate, such difficulties could have been overcome and shortfall in production avoided. It is stated that these difficulties have been handled after commissioning of Tidi dam for water supply, renovation of the old mill, replacement of some of the equipment and planned purchase of re-agents like copper sulphate.

5.56. The Committee have already given their recommendations about water supply arrangements elsewhere in this report. The Committee recommend that the Management should lay down the maintenance schedules to service the machines and ensure that these are observed regularly. The steps taken in pursuance of the maintenance schedules should be periodically reviewed by the Board and remedial action taken where necessary. The Committee would also recommend that the inventory control should be streamlined and demand of various re-agents and other things necessary to run the mills should be worked out well in advance and suitable arrangements made for their timely supply to avoid any dislocation in the production programmes.

5.57. The Committee note that power interruptions have also been responsible for the decline in the recovery efficiency of the mills and the under-utilisation of milling capacity. Emergency sets are being installed with a view to keep essential equipments and services running but it is stated that the capacity of the generating sets will not be enough to keep the milling or mining operations going. The Corporation has stated that "the adverse effects of power interruptions or power cuts leading to loss of ore production and milling capacity cannot be overcome by stand-by generating sets as continuity of power supply is a must to ensure proper functioning." The Committee are informed that installation of a 132 KVA sub-station at Zawar mines by Rajasthan State Electricity Board has to some extent contributed to lowering the frequency of power interruptions and trippings. The Committee feel that in view of the all round improvement in the power supply position, it should not now be difficult for the undertaking to make the State Electricity Board agree to meet the power requirements of the smelter complex on a long term and firm basis. They would like the Ministry/Undertaking to take up the matter with the State authorities at high level and resolve the problem of power supply on a priority basis.

5.58. The Committee regret to note that the percentage of concentrates produced to the quantity of ROM treated (old Mill) had shown a declining trend except in 1971-72 and 1973-74 when there was slight improvement over the previous years. It has been stated that the grade of ore at lower horizons was going down with consequent fall in metal content. The Committee also note that there was no set pattern between the recovery efficiency and the richness of ore in the od and the new Mill. The recovery efficiency of the old mill varied from 81.6 per cent to 90.3 per cent in the case of zinc and 79.9 per cent to 89.9 per cent in the case of lead as against the recovery efficiency of 73 to 83.6 per cent (zinc) and 82.3 per cent to 87.5 per cent (lead) in the new Mill. The Committee are informed that in view of the erratic behaviour of the ore in terms of metal content, which on occasions were reaching uneconomic levels, the Management were considering the possibility of introducing an on-line computerised analyser so that instanteneous adjustments in fuel and re-agents could be made. The Committee are informed that the computerized analyser is a highly sophisticated and costly equipment of imported origin and its introduction has to be preceded by several studies which are still on. The Committee would like that cost benefit analysis of the introduction of computerised analyser should be worked out before taking a final decision in the matter and the Committee informed of the results.

D. Zinc Smelter at Debari

(d) *Actual production vis-a-vis rated capacity and targets of production*

5.59. The agreement with the French collaborators (M/s. Krebs of Paris) for the existing Zinc smelter at Debari provided for a guaranteed output of 51.5 tonnes of zinc ingots per day, 90 tonnes of sulphuric acid per day and 15 tonnes of superphosphate per hour, besides recovery of (without any guarantee) 72 per cent of cadmium contents in the concentrate. On the basis of the analysis of the Zawar Blende (concentrate) given in the agreement and the daily rated capacity of the Roaster to treat the same and taking into account the number of working days for the different sections of the smelter and the availability of the material, the annual rated capacity of the plant for the production of zinc ingots, sulphuric acid, superphosphate and cadmium has been worked out by the Management as 18,000 tonnes, 29,000 tonnes, 75,000 tonnes and 80 tonnes respectively.

5.60 The table below indicates the rated capacity of the smelter, the annual production targets fixed by the Management and the actual production during 1963—69 to 1974-75:—

(Quantity in tonnes)

Product	Rated capacity	Targets						
		1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1	2	3	4	5	6	7	8	9
Main product								
Zinc Ingots	18,000		12,000	12,000	12,500	14,000	11,210	13,000
By products								
Cadmium . . .	80		45	30	30	20	20	40
Single Super-phosphate . .	75,000		45,000	60,000	55,000	49,500	35,000	47,000
Sulphuric Acid . . .	29,000		24,000	24,000	27,000	27,000	..	20,000
Zinc Sulphate	N.A.	..	..	..	..	150	200	160

(Quantity in tonnes)

Product	Production						
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
	10	11	12	13	14	15	16
Main Product							
Zin Ingots . . .	13,402*	9,926	9,490@	12,125@	9,565@	12,512$	13,952
By Product							+803
Cadmium	52	32	23	15	20	27	46·11
Single Super-Phosphate . .	48,933	42,650	51,054	46,778	43,257	27,300	50,670
Sulphuric Acid	18,119	18,403	21,195	24,357	22,887	14,494	21,878
Zinc Sulphate . . .	..	142	227	222	200	160	185·90

(Quantity in tonnes)

Product	Percentage of actual production to rated capacity						
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
	17	18	19	20	21	22	23
Main Product							
Zinc Ingots . . .	74·45	55·14	52·72	67·36	53·14	69·51	81·97
By Products							
Cadmium	65·00	40·00	28·75	18·75	25·00	33·75	57·64
Single Super-Phosphate . .	65·24	56·87	68·07	62·37	57·68	36·40	67·56
Sulphuric Acid .	62·48	63·46	73·09	83·98	78·92	49·98	75·44
Zinc Sulphate	..	..	..	..	..	..	..

(Quantity in tonnes)

Product	Percentage of actual production to targets						
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
	24	25	26	27	28	29	30
Main Product							
Zinc Ingots . . .		82·74	79·08	97·00	68·32	111·61	113·5
By Products							
Cadmium		71·11	76·66	49·93	100·00	135·00	115·27
Single Super-Phosphate . .	..	94·78	85·09	85·05	87·39	78·00	107·81
Sulphuric Acid . . .		76·68	88·31	90·20	84·77	..	109·39
Zinc Sulphate	..	..			133·33	80·00	116·19

NOTES :—1. No targets were fixed for 1968-69 and the plant went into full production in June, 1968.

2. @Exclude 1308 tonnes, 135 tonnes and 3115 tonnes of zinc cathodes (equivalent to 1244 tonnes 126 tonnes and 2960 tonnes of Zinc ingots) produced during 1970-71, 1971-72 and 1972-73 respectively. Although the zinc cathodes lying as at the end of 1970-71 and 1971-72 were melted in the subsequent year, only 3016 tonnes of cathodes could be melted during 1973-74 out of 2534 tonnes of unmelted cathodes lying at the end of 1972-73 and 11393 tonnes of cathodes produced during the year 1973-74 due to breakdown of SICE furnace. The furnace worked for 159 days only during 1973-74 and that too at truncated capacity.

3. *Includes 4807 tonnes of cathodes (equivalent to 4327 tonnes of zinc ingots) produced in 1967-68 but melted during 1968-69.

4. As the existing pilot plant, which is at present being used for the production of zinc sulphate, has not been modified so far to produce copper sulphate, copper cement sludge to be used for the production of copper sludge is accumulating at present. A quality of roughly 250 tonnes of copper cement sludge had accumulated up to 31st March, 1973.

5. $Includes 10911 tonnes of cathodes equivalent to 10365 tonnes of zinc ingots,

5.61. The targets of production were fixed lower than the rated capacity. According to the Management these targets were fixed on the basis of the capacity of zinc smelter which could be achieved during the year. The actual production was, however, still less than the annual targets except in case of cadmium and zinc sulphate during 1972-73 and zinc ingots and cadmium during 1973-74. In the Company's annual reports for 1968-69 to 1969-70, it was mentioned that one of the reasons for non-achievement of target production during these years was the non-availability of adequate quantity of zinc concentrates. To meet the shortage of zinc concentrates the company drew up plans for import of concentres in February, 1968. Imports could, however, be finalised only in August, 1969, and a quantity of 10,000 tonnes was imported for the first time in October, 1969. Altogether a quantity of 44,702 tonnes valued at Rs. 5.27 crores (at average landed cost of Rs. 1,180 per tonne at Kandla)—10,866 tonnes in 1969-70, 7,024 tonnes in 1970-71, 21,884 tonnes in 1971-72 and 4,928 tonnes in 1972-73 imported.

5.62. The Committee enquired as to why zinc concentrates could not be imported earlier to ensure better utilisation of Zinc Smelter capacity. The Management have stated that the need for importing concentrates was foreseen by the Management in the middle of 1968-69. Actual import took some time due to the formalities involved in such purchases from the world market.

5.63. The Management stated in January, 1975 as follows:—

> "If the production build up of the plant was allowed in the ideal manner, the actual production of ingots after first year of operation should have been 60 per cent of the rated capacity, namely, 10,000 tonnes, 80 per cent in the next year, namely 14,400 tonnes and 100 per cent in the third year, namely, 18,000 tonnes.
>
> The slippage against production capacity continued even after the third year. Availability or otherwise of concentrates would not have changed the position because...... there were (i) heavy power interruptions militating against a stable operation, (ii) power failures as well as lack of appropriate maintenance organisation caused damages to certain parts of the plant, particularly, the Roaster and Sulphuric Acid Section, (iii) eagerness to utilise full capacity of the plant immediately after start up resulted in what is known as "flogging" of the plant with consequent harm to the health of the organisation, personnel

psychology and equipment life, and (iv) large variation in the quality of the feed stock i.e. concentrates imported from abroad.

The Company was handicapped for want of experience as even at national level, there was no experience with a process of this type. It had no experienced personnel on roll either in operation or in maintenance."

5.64. The Committee enquired as to why the non-availability of Concentrates had been mentioned as one of the reasons for non-achievement of targetted production in the Company's annual reports "if availability or otherwise of concentrates would not have changed the position" as has been stated now. The Management have stated as follows:—

> "With the available expertise in the company and lack of experience with this particular type of roaster at that given point of time, it was presumed by the then Management that if plenty of concentrates were available, better utilisation could be attained. Subsequent experience gathered justifies the statement made in January, 1975 that even if all the concentrates were made available, successful attainment of capacity utilisation would not have been possible due to other reasons."

5.65. The Management while explaining the reasons for shortfall in production further stated (January, 1975) as follows:—

> "During 1971-72 when the concentrate position was satisfactory a doubt arose whether the plant had a genuine production capacity of 18,000 tonnes per year. The Company, therefore, decided to invite two Polish experts to examine the Leaching, and Purification section in particular. It also invited the General Manager of an identical plant in Italy to examine the entire plant from the Roaster onwards.
>
> The Polish experts categorically stated that the leading purification section had adequate capacity and recommended incorporation of only marginal balancing equipment on the filtration side.
>
> The General Manager of Crotone plant pointed out several deficiencies in the operational aspects, but confirmed that the plant as a whole, has adequate capacity. He was,

however, not very confident that the Roaster would be able to perform to full rated capacity without modifications or alternatively without reduction in the number of working days in the year so as to enable a routine cleaning to be taken up of the boiler section. He expressed hopes, that as and when the organisation gets lined up for routine cleaning the number of hours of shut down required per year will go on progressively reducing.

The Company also invited experts from Lurgi-Frankfurt who are the basic designers for the Fluo-solid roasters on the licence of Veille Montagne of Belgium. They recommended certain modification to enable better capacity utilisation of the Roaster and these have been incorporated. One balancing intermediate fan which they recommended has yet to be procured.

A major designal feature, created by placement of the boiler next to the roaster in a manner which attracts a change in the direction of the flow of dust laden hot gases will continue, however, to be a constraint. Any modification to this designal feature will involve major reconstruction and it is not considered worth-while. The marginal short-fall which will be the result of this designal constraint is proposed to be made good by providing a marginal extra capacity in the new roaster which is now under erection for expanded smelter. The existing roaster, however, should be able to reach over 90 per cent capacity utilisation if stability in power supply can be ensured."

5.66. While considering the question regarding full utilisation of the existing smelter capacity of 18,000 tonnes per annum the question regarding working of the roaster also came up for discussion in the meeting held in the Planning Commission on 15th January, 1974. It was brought out that the main impediment in attaining a production higher than 13,500 tonnes (revised to 15,000 tonnes per year in March, 1974) even in 1974-75 was the limited capacity of the roaster which suffers from design defects. It was, further pointed out that major repairs and renovation would be needed to bring it up to the designed capacity and this would involve a prolonged shut down of the plant leading to significant loss of production. The relative advantages of running the plant until 1976 (by which time the new roaster with spare capacity under the expansion scheme of Debari Zinc Smelter is expected to come) on the reduced level of production as compared to immediate shut down were considered in the Board meeting held on 2nd/3rd Aug., 1974. It was not considered worthwhile to lay off the entire plant at present for a thorough overhaul to remove deficiencies in the existing roaster complex as some of these deficiencies were stated to be not removeable except at considerable cost."

5.67. During evidence, the Chairman, HZL explained the position as follows:—

> "the deficiencies have to be divided into two parts. One is conceptual deficiencies. That means, the knowledge side was not so well developed in those days........" The other one is, the design parameters assumed were ambitious. For example, the roaster was expected to run 330 days in a year, at almost 100 per cent capacity. We checked up that such an availability of a roaster is not possible. This second defiiciency can be made good by having a marginally higher roaster capacity in the next smelter i.e. the expanded one, so that the total number of working days between the two roasters is objectively attained. In regard to the conceptual deficiencies, many of them have been rectified. But, one of the major ones is the placement of the boiler virtually at right angles to the direction of flow of air. This was done by internationally known firms but this had added to our problems of maintenance. This also reduces the availability of the roaster. Instead of 330 days, it becomes 300 days. This particular deficiency, namely, the placement of the boiler in relation to the roaster cannot be changed now because it need a lot of money and there is no space for it."

5.68. The Committee enquired if there was any compensation clause for defect/deficiencies in design in the agreement. The witness stated as follows:—

> "The agreement provided guarantee test runs and certain clauses to that effect and the guarantee tests as per agreement were done by the Hindustan Zinc and they were satisfied. To our knowledge at that time it was working very well. Even in 1969 the Bureau of Public Enterprises made a study in depth of this particular smelter and they came to the conclusion that this roaster had much more capacity than actually prescribed by

> the suppliers. So much so, they have recommended that in the expansion, the roaster capacity should be lower than the present one. So, by 1969-70 a question that everybody raised was that the roaster had extra capacity than actually given by the original designers. Only later on when the full concentrates were available and a full operation pressure was put on that it was gradually realised that the roaster had the designal parameter deficiencies and also conceptual deficiencies leading to under-capacity than what was in the agreement regarding the design capacity. But by that time all things were over. The plant was then four years old."

5.69. During evidence of the representative of the Ministry, the Committee enquired if it was not possible to detect the defects earlier. The Additional Secretary of the Ministry stated as follows :—

> "It is a fact that the Roaster did operate without any major defects being noticed initially for a good period. This point is also more important. The new question is that during the prescribed period of commissioning, trials as they call it or guarantee test runs, the various officers of the Hindustan Zinc did give a certificate that it had performed according to the requisite guarantee over the period. So, since these are the records available and it is also a fact that it did run without particular trouble of the kind that arose afterwards, even beyond the guarantee period, we had to conclude that it was not physically possible at that time to detect the defect that later came to our notice."

5.70. The Committee invited the attention of the witness to the following observation contained in the report submitted in 1969 by the Study Team of Bureau of Public Enterprises which was set up to study in depth the working of Hindustan Zinc Ltd. to assess its order position, economic viability, and break-even point and which consisted of the Deputy Adviser (production) of Bureau of Public Enterprises, the Deputy Secretary of Department of Mines and Metals and the Senior Cost Accounts Officer of the Bureau of Public Enterprises:—

> "The roaster and acid plant performance has been subjected to detailed study and the number of tests carried out in January, 1968 would indicate that a production level as high as 150 tonnes of ore treatment per day can be achieved. This is 25 per cent above the rated capacity and provided the modifications and improvements, the need for which became apparent during the tests and analysis results, are implemented this could become the optimum performance capacity."

5.71. The Committee enquired about the justification for giving such a certificate. The witness *inter alia* stated as follows:—

> "I have read the report of the Bureau of Public Enterprise and incidentally its team had not gone just to examine this roaster as such. At that time, in pursuance of its normal activities, a team of people from the Bureau of Public Enterprise had looked at random for taking up a study in depth of the total picture of three undertakings. I think the other two were Heavy Electricals at Tiruchi and Hardwar—in regard to managerial, technical, financial and labour aspects Hindustan Zinc happened to be one of those three undertakings. It was not that Hindustan Zinc was specially picked up for intensive study by the Bureau. The report covers the whole of Hindustan Zinc, in that case the Bureau team did not include any metallurgical expert. So this team was not sent as an Enquiry Committee as such to enquire into the roaster but just like an audit team. Incidentally they also found out something and they did mention that the Roaster seemed to be good and that kind of thing. I have not been able to get hold of any more data but, on reading their report, it has left me with the conclusion that this sort of Roaster which till then had not broken down must have given an impression that there was no problem. But they have seen problems elsewhere, and so on this they recorded what they had heard or seen."

5.72. The Committee pointed out that loss in capacity due to the design deficiency of the Roaster was to the extent of 10 per cent but the actual utilisation of the capacity of the smelter was only

53 to 82 per cent. Asked as to how it was reconciled. The witness stated as follows :—

> "I am not reconciled at all, actually I have already confirmed your doubt about this. The Roaster can be held as being a constraint only when I can otherwise exceed the 90 per cent. But, going through the records, I have found that the Roaster was not tried to that extreme, even with import of concentrates. In other words, the Roaster by itself physically did not reach the point of being a constraint."

5.73. The Committee note that, as against the rated capacity of 18,000 fixed for Debari Smelter, which was expected to be achieved in the third year of operation (1970-71), the actual production of zinc ingots in 1970-71, was only 53 per cent of the rated capacity. It touched 70 per cent in 1973-74 and has reached 82 per cent in 1974-75. The slippage against production capacity has not been due to non-availability of adequate quantity of zinc concentrates, as was thought by the Management earlier, but due to heavy power interruptions and power failures, lack of appropriate maintenance organisation and large variation in the quality of concentrates imported from abroad. The Committee regret to note that lack of appropriate maintenance, organisation besides acting as a constraint on production, caused damage to certain parts of the plant particularly the Roaster and Sulphuric Acid section and eagerness to utilise full capacity of the plant prematurely resulted in "flogging" of the plant causing harm to equipment life. They are informed that the undertaking was handicapped for want of experience as even at national level, there was no experience with a process of this type. It had no experienced personnel on roll either in operation or in maintenance.

5.74. The Committee cannot understand why the question of arranging training for the technical personnel to operate and maintain the plant, which is of basic importance, was not considered by the Management contemporarneously with the erection of the plant and why admittedly inexperienced personnel was allowed to overreach themselves and mishandle the critical sections of the plant. They view it as a patent instance of lack of foresight on the part of Management and over-ambitious on the part of technical personnel. The Committee would like the Government to investigate whether training of personnel was not contemplated under the agree-

ment with technical/foreign collaborators and why the technical personnel were not got trained by the the collaborators in the course of installation of the plant. They would like responsibility for these lapses and the damage done to the plant as a result of inept handing by inexperienced personnel to be fixed and the Committee informed of the action taken in the matter.

5.75. The Committee would like to be informed of the positive measures taken for training of the personnel for maintenance and operation of the plant to prevent damage and avoid loss in production.

5.76. The Committee are informed that the main impediment in attaining production higher than 13,500 tonnes even in 1974-75 (as against a capacity of 18,000 tonnes) was the limited capacity of the Roaster which is stated to be suffering from design defects. The Roaster is stated to have operated without any major defects initially for a good period and the officers of the undertaking had given a certificate that it had performed according to the requisite guarantee.

5.77. The Study Team of the Bureau of Public Enterprises in their report (1969) on the working of the undertaking also observed that a production level as high as 25 per cent above the rated capacity could be achieved. They have been informed by the Chairman of the undertaking in evidence that "later on (1971-72) when the full concentrates were available and a full operation pressure was put on that, it was gradually realised that the Roaster had the designal parameter deficiencies and also conceptual deficiencies leading to the under-capacity than what was in the agreement regarding the design capacity." The Committee cannot understand as to how the certificate of performance guarantee could be given by the officers of the undertaking without operating the Roaster at full pressure for a considerable period. They cannot but deprecate the undue haste and lack of elementary caution shown by the officers of the undertaking in this regard which has resulted in the undertaking being saddled with a Roaster which is defective in design and consequently deficient in capacity. The Committee would like this matter to be enquired into with a view to fixing responsibility and learning lessons.

5.78. The Committee feel that guarantee tests of plant and equipment are meaningless unless they are conducted under normal conditions with full operation pressure and certificates of performance guarantee should not be issued unless the Management are throughly

satisfied from all aspects during actual trials that the plants etc. are capable of working to full capacity. They would like the Bureau of public Enterprises to issue standing guidelines in this regard for the benefit of all public undertakings.

5.79. The Committee are informed that the Study Team (1969) of the Bureau of Public Enterprises, which also certified that Roaster was capable of attaining a production level higher than the rated capacity, did not include any metallurgical expert and the team "was not sent as an Enquiry Committee as such to enquire into the Roaster but just like an audit team". The Committee cannot understand why such a Study Team chose to comment on the performance of the Roaster when it neither included an expert nor was it deputed for the purpose.

5.80. The Committee find that though many of the conceptual deficiencies of the Roaster have since been rectified, one of the major deficiencies, viz., placement of the boiler virtually at right angle to direction of flow of air, still persists and cannot be attended to as it would involve major reconstruction and is not considered worthwhile. It is expected that the existing Roaster should be able to reach over 90 per cent capacity utilisation of stability in power supply can be ensured. The marginal sortfall is proposed to be made good by providing a marginally extra capacity in the new Roaster which is under erection for expanded smelter and is expected to be commissioned in 1976-77. The Committee hope that with the improvement in power position, as already pointed out, it would be possible for the undertaking to operate the Roaster to over 90 per cent of capacity. They also hope that the lessons learnt from the installation, design deficiencies and guarantee trials of the existing Roaster would be kept in view while erecting, testing and commissioning the new Roaster for the expanded smelter.

E. Characteristics of Zinc Concentrates

5.81. According to the suppliers (M|s. Krebs), the Zinc Smelter at Debari was designed to give the zinc recovery of 86 per cent (excluding the recovery of zinc from the leaching plant residue) provided the zinc conent in the blend was 55.5 per cent and the iron content did not exceed 4.5 per cent. However, the characteristics of zinc concentrates actually fed into the plant widely varied.

5.82. According to the Management (August, 1971) the deteriorating quality of Zawar concentrates and the different grades of imported concentrates were not conducive to attain the recovery efficiency of 86 per cent in the plant. The recovery efficiency actually obtained was 84.2 per cent, 80.66 per cent, 77.36 per cent, 73.97 per cent, 78.47 per cent, 77.94 and 81.04 per cent during 1968-69 to 1974-75.

5.83. In May, 1971 the Company appointed M|s. Chemical and Metallurgical Design Company (P) Ltd., New Delhi on a payment of Rs. 1.25 lakhs—a firm approved by the Planning Commission for rendering consultancy services and introduced by the Ministry in 1970 for reviewing the project report for Vizag Zinc Smelter submitted by M|s. Centrozap, to:

(i) study the operations of the zinc plant and make recommendations for improving concentrates, and cadmium recovery from the roasted concentrates; and

(ii) carry out laboratory investigations to develop suitable hydrometallurgical scheme to recover additional zinc from the moore cake (leached residue).

5.84. The firm was required to submit the report within 4 months. The report, was, however, submitted in two parts the first part in May, 1972 and the second part in September, 1972.

5.85. The Committee enquired if the reasons for delay in submitting the report were ascertained from the firm. The Management have stated as follows:—

> "Though no reasons for delay in submitting the report were ascertained from the company, they had apparently under estimated the nature of the problems and took much longer time to submit the report."

5.86. While submitting the reports to the Board of Directors, the Managing Director observed as follows:—

Part I:

While making observations regarding low recovery of zinc and cadmium, the firm had failed to indentify the handling losses in the plant contributing to low recovery and had concentrated their attention on the mechanical improvement of the existing plant and machinery instead of giving specific guidelines on the process side.

Part II:

(1) On going through the scheme recommended by the firm for recovering additional zinc from leached residue, it appeared that they were not familiar with the latest deve-

lopment of the Jarosite process which was being progressively adopted in the new electrolytic zinc plants all over the world.

(2) The firm had claimed that their process was unique but M|s. Societe Vielle Montague of Belgium had been using the same material in their residue treatment plant.

(3) The firm had estimated that the proposed plant might cost Rs. 2.5 crores whereas information available with HZL revealed that Jarosite plant might cost slightly more than Rs. 1 crore. Considering the operating cost along with the capital cost involved, the process could not be useful for the treatment of Debari Sludge.

(4) The firm had categorically stated that their scheme needed a thorough testing in a pilot plant before any commercial plant could be designed. How long and at what cost the pilot scheme was to be carried out had, however, not been indicated in the report.

While seeking certain further clarification from the firm in December, 1972, the Management observed in regard to Part I of the report that in the absence of a clear definition of the various causes contributing to such high losses, it had not been possible to derive any benefit from the report. Regarding the second part, the firm was asked to indicate the estimated capital cost of the pilot plant as well as the operating cost of such plant so that a positive decision could be taken in the matter. In April, 1974, the Company stated that even after receipt of clarification, the report was not found technically suitable for implementation. Moreover, the financial involvement was very heavy which was not considered commensurate with the result to be achieved.

5.87. The Committee enquired about the basis for selecting M|s Chemical & Metallurgical Design Company for this study, the Management have stated as follows:—

> "Since no other firm approached the Hindustan Zinc Ltd. claiming expertise in hydro-metallurgy, the Company presumed that M|s Chemical and Metallurgical Design Company were the only Indian firm claiming expertise."

During evidence the Chairman, HZL, stated as follows:—

> "I am personally a little scared of the various Indian companies going about and making all kinds of claims. It is better to invest in them once and prove that they cannot do it. These people are claiming continuously, on the basis of Nickel technology, saying that they know every thing of hydro metallurgy because they have a patent in Nickel technology. The patent has been sold in Cuba, and it depends entirely on it. If Sukhind Nickel is any indication, I do not know what that technology can do for us. But this firm's voice was heard very loudly in Delhi. We wanted, therefore, to ask them to tell us as to where the losses were taking place, and what steps should be taken. They did not even know when they started the job that instead of 4 months, they would take 16 months. All that we got out of the study was that they could tell us, the leakage points which we could not find it out from the few laboratory men on regular job. We came to know the points at which zinc was escaping. It was helpful to that extent, but the remedy does not lie there. They suggested entire leaching should be done in high pressure of temperature in one case in an inert atmosphere. With the use of Nitrogen gas, I do not know how the workers will work. Secondly, they had said that they could do pilot plant test. The estimate was for Rs. 20 lakhs over a period of 5 years. So we, bade good bye to them and we never troubled them again. That is the honest truth."

5.88. The Committee enquired if the Management had worked out the extent to which the recovery efficiency suffered on account of variations in concentrates and if the reasons for fall in recovery efficiency were analysed regularly. The Chairman, HZL stated during evidence as follows:—

> "The basic design of the Roaster Complex and the whole capacity of the plant were determined before we took over the MCI. They had planned the whole thing on very pure concentrate, which was available to them at that time, i.e. 55 per cent zinc with very low iron content of 4 per cent or so. But as the mining continues, we find that it is not possible to get such a rich content of zinc, or a low iron content. It can be proved technologically that as the

iron content rises, for every 1 per cent of such an increase, there is 1.5 per cent drop in the efficiency of recovery of zinc. It means that if, instead of 4 per cent iron content it is 5 per cent, we will have a zinc recovery of 84.5 per cent, instead of 86 per cent. The zinc concentrate we are getting now has an iron content hovering between 6 per cent and 8 per cent, almost 3 to 4 per cent over and above the designed parameter. We are losing 4 to 5 per cent there. It has become 81 per cent to 82 per cent."

F. Disposal of Moore Cake (Leached Residue)

5.89. The residue left over in the process of leaching of zinc oxide is known as moore cake. As the existing plant at Debari does not provide for recovery of zinc and lead from moore cake the entire quantity of moore cake has been stock piled at the Zinc Smelter since inception.

5.90. Moore Cake lying at the Zinc Smelter at the end of 1974-75 was estimated to contain 10,700 tonnes of zinc and 2,438 tonnes of lead, the value of which on an assumption of 50 per cent recovery has been estimated at Rs. 3.47 crores (at cost price).

5.91. As stated earlier attempts made through M|s. Chemical and Metallurgical Design Company to develop suitable hydrometallurgical scheme to recover additional zinc from the moore cake did not succeed. A plant for treatment of moore cake of zinc smelter and blast furnace slag of lead smelter of the capacity of 6,000 tonnes per annum and estimated to cost Rs. 3.50 crores is being installed at Vizag Smelter.

5.92. In October, 1974, the Management stated that the scheme for transporting moore cake from Debari to Vizag for treatment in the plant at Vizag Smelter was under re-assessment on account of the substantial freight involved with a view to find out some other alternative scheme for its treatment. The Management further stated in February, 1975 as follows:—

> "In the Project report prepared for the Vizag Zinc Smelter it was envisaged that Moore Cake produced at Vizag would be treated using Waelz Kiln for recovery of zinc and lead. The size of Waelz Kilns was originally envisaged to treat sludges from Debari and Alwaye also. Subsequenty, the

> size of Waelz Kiln at Vizag was suitably modified to treat its own sludge."

5.93. The Management also stated that there would be marginal spare capacity of the kiln at Vizag which might be utilised for treating Debari sludge at a temporary expedient and that a decision to add to the kiln capacity and its location or incorporation of hydro-metallurgical, jarosite or any other process to treat the Debari sludge might be taken by 1980 when the accumulated stock at Debari would be about 1,50,000 tonnes. It was also mentioned that moore cake from Debari would have about 16 to 20 per cent zinc and recovery would be 80 per cent (more or less) up to ingot stage.

5.94. About the treatment of Moore Cake from Debari Smelter in the plant at Vizagapatnam the Chairman, HZL explained the position during evidence as follows:—

> "We have made calculations and it is uneconomical. The sludge comes out as slurry. If we transport it, we have to dry or put it in a metal container. There are the broad gauge and metre gauge tracks en route. It is not worth the trouble. The Railways are not willing to commit themselves to transport acidic material. This is not the last smelter; we are having smelters elsewhere in India, as well. If we do it every time and transport it to Vizag, it will not pay. We must have a suitable process, so that each plant will have it."

5.95. Asked about the justification for deferring till 1980 the decision regarding installation of regular facilities for the recovery of zinc and lead contents of Moore Cake. The Management have stated as follows:—

> "Zinc Smelter at Debari is operating on hydrometallurgical process with production of zinc by Electrolysis and therefore it was not thought desirable to start pyrometallurgical process for the recovery of Zinc from sludge reject. There are hydrometallurgical proesses for the recovery of zinc from these sludges|rejects and are being used in many countries. Royalty being asked for, however, is very high. On the other hand, the recovery of zinc from this sludge|rejects by Waelz Kiln is comparatively cheaper provided a kiln of adequate capacity is installed. Only after adequate stocks of these sludges|rejects have been built up decision can then be taken as to whether it will be worthwhile to go for hydrometallurgical process in spite of high Royalty or instal a Waelz Kiln of economic capa-

> city. Since a Waelz Kiln (the operation of which requires considerably expertise) is being installed at Vizag Zinc Smelter its operation will also give an experience of its working and its suitability for Debari."

G. Blast Furnace Slag at Tundoo Lead Smelter

5.96. Estimated quantity of slag lying at Tundoo is 80,000 tonnes containing on an average 7-8 per cent zinc and 2-25 per cent lead. Treatment of this slag in Waelz Kiln will yield 4680 tonnes of zinc and 1400 tonnes of lead as Oxides. Further treatment of which in respective Smelters will yield 3930 tonnes of zinc and 1260 tonnes of lead.

5.97. The Committee enquired as to how the blast furnace slag of lead smelter at Tundoo is proposed to be utilised. The Management have stated as follows:—

> "The Vizag Smelter will attain full capacity operation after two years of start up and therefore the Waelz Kiln if started simultaneously will have marginal excess capacity to Treat Tundoo Slag in the intervening period. Even otherwise, the kiln has been designed for accepting additional lead. Depending on experience gained by 1979, suitable slag treatment plant will be installed."

5.98. The Committee find that Hindustan Zinc Ltd., appointed in May, 1971 M/s. Chemical and Metallurgical Design Company (P) Ltd. on a Payment of Rs. 1.25 lakhs to (i) study the operations of the zinc plant and make recommendations for improving concentrates and cadmium recovery from the roasted concentrates and (ii) carry out laboratory investigations to develop suitable scheme to recover additional zinc from the moore cake (leached residue). Although the firm was required to submit the report by September, 1971, the final report was actually submitted in September, 1972 i.e., after a delay of about one year. The Committee regret to learn that it has not been possible for the Undertaking to derive any benefit from Report as the report was not technically suitable for implementation, with the result that the entire amount of Rs. 1.25 lakhs paid to the firm has proved to be infructuous. The Committee are not convinced of the argument advanced by the Management that since no other firm approached the undertaking claiming expertise in hydrometallurgy, HZL presumed that M/s. Chemical and Metallurgical Design Company were the only Indian firm claiming expertise.

5.99. The Committee feel that even though the private company was on the approved list of the Planning Commission to render consultancy services and was introduced by the Ministry in 1970 for reviewing the project report for Vizag Zinc Smelter, the Management should have evaluated their capability and experience with special reference to the particular problems in view and should not have presumed that the Company was capable of dealing with all the matters relating to non-ferrous metals. They feel that the Management should have acted with greater caution and prudence and should not have accepted the claim of M/s. Chemical and Metallurgical Design Company without satisfying themselves about their professional standing and calibre. The Committee are surprised at the argument of the undertaking that "it is better to invest in them once and prove that they cannot do it." The Committee would like Government to analyse the various factors which led to the wrong choice of consultants in this case and learn lessons for the future.

5.100. The Committee regret to note that both the problems which the private firm was expected to study and sort out, still remain unresolved. They find that the zinc smelter at Debari was designed to give zinc recovery of 86 per cent provided the zinc content in the blend was 55.5 per cent and the iron content did not exceed 4.5 per cent. But the zinc concentrates now have iron content ranging between 6 per cent and 8 per cent and because of higher iron content the percentage of zinc recovery during 1970-71, 1971-72, 1972-73 and 1973-74 was only 77.36 per cent, 73.98 per cent, 78.47 per cent and 77.94 per cent respectively.

5.101. The Committee suggest that the Ministry/Undertaking should analyse the reasons for the fall in recovery efficiency in consultation with competent and experienced experts and research bodies in the field with a view to devising ways and means of improving the recovery efficiency to the maximum level possible in the prevailing circumstances.

5.102. The Committee note that after spending over Rs. 15 lakhs besides suffering loss of recovery, the Undertaking could now to some extent improve the efficiency.

5.103. The Committee while commending the work of the Undertaking fail to understand why they should not have remedied the situation earlier and thereby avoided a recurring loss.

5.104. The Committee are informed that moore cake lying at the Debari Zinc Smelter at the end of 1974-75 was estimated to contain 10,700 tonnes of zinc and 2,438 tonnes of lead, the value of which

on an assumed recovery of 50 per cent has been estimated to be Rs. 3.47 crores (at cost price). They note that attempt made through M/s. Chemical and Metallurgical Company to develop suitable scheme to recover additional zinc form moore cake did not succeed. The original proposal to treat the Debari moore cake at Vizag, where Waelz Kiln is being installed for the purpose, was dropped due to difficulties and high cost of transport of Debari sludge to Vizag. The Committee find that a decision to install regular facilities for the recovery of zinc etc., from Debari sludge has been deferred till 1980 by which time adequate stocks of these sludges rejects would have been built up and experience of the working of Waelz Kiln at Vizag would have been gained and its suitability for Debari evaluated.

5.105. The Committee are informed that treatment of slag lying at Tundoo in respective smelters will yield 3,930 tonnes of zinc and 1260 tonnes of lead. They are further informed that Vizag smelter will attain full capacity operation after 2 years of star-up and the Waelz Kiln, if started simultaneously, will have marginal excess capacity to treat Tundoo slag in the intervening period. It is stated that depending on experience gained by 1979, suitable slag treatment facilities will be installed.

5.106. The Committee recommend that the Ministry/Undertaking should examine again the pros and cons of deferring the schemes to recover zinc/bad from Debari sludge and Tundoo slag till 1980 and 1979 respectively and take a decision in the matter, in consultation with experts, in the best interest of the understaking.

H. Production of Cadmium

5.107. The agreement entered into with M/s. Krebs for engineering services and supply of equipment etc. of the zinc smelter, Debari in November, 1966 indicated without any guarantee that about 72 per cent of cadmium in the concentrate would be recovered as electrolytic cadmium.

5.108. As against the above, the cadmium contents in the concentrates processed, cadmium actually recovered, the percentage of recovery to input, etc. during the years 1968-69 (January, 1968 to March, 1969) to 1974-75 are indicated below :—

(In tonnes)

Particulars	1968-69 (Jan. 1968 to March 1969)	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1. Cadmium input through blende	62·500	52·030	73·010	59·000	64·580	65·000	109·32 (96·68 M.T. through blende +12·64* through granules**).
2. Actual production of cadmium ingots	52·030	32·250	22·686	14·986	19·565	26·730	47·48 ***
3. Granules . .			2·930	3·340	2·635	4·640	Nil (retreated)
TOTAL .	52·030	32·250	25·616	18·326	22·200	31·370	47·48
4. Percentage of recovery .	83·25	61·98	35·09	31·06	34·37	48·26	43·43
5. Expected output (at 50% as assessed by Management) .	31·250	26·150	36·505	29·500	32·280	32·500	54·66
6. Difference in the actual recovery and the expected output			10·889	11·174	10·080	1·130	7·18

7. Value of the quantity of cadmium at (5) above (Rs. in lakhs)	..	11·70	11·00	10·00	1·32	(see note below)****

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* Process for retreatment has been established for the recovery of Cadmium locked up in granules. The method involves the dissolution of granules in Copper Sulphate solution in acidic medium, producing Copper Sponge/Cake and Cadmium Sulphate solution. The cadmium Sulphate solution is separated and taken into main stream for further processing. The copper sponge containing between 20—25% Cadmium is kept in stock for developing a method for making copper sulphate coystals and further recovery of 75 tonnes of Cadmium locked up into this sponge. Stock of this Copper sponge is about 35 M.T. containing 20—25% cadmium which is not shown in the output.

** Granules treated were 12·73 tonnes containing 99% Cadmium. Hence actual Cadmium metal input through granules works out to 12·64 tonnes.

*** Includes 1·37 M.T. ingots equivalent of 1·63 M.T. of Cadmium Cathodes in stock as on 31-3-1975 taking 84% melting recovery.

**** Though apparently there is a shortfall of 7·18 M.T. but actually there is no shortfall because remaining Cadmium is locked up in the copper sponge produced after granules treatment.

5.109. The Committee enquired about the basis on which the Management assessed the recovery of Cadmium at 50 instead of 72 per cent indicated by the foreign consultants and suppliers. The Management have stated as follows:—

> "The indicated recovery of Cadmium as 72 per cent was given by foreign consultants on the basis of a certain calculated loss of Cadmium through Moore Cake. The blende now available contains much higher iron content and the formation of ferrite—complex of iron, Cadmium, Zinc compound—is therefore, higher than anticipated. Loss of Cadmium through Moore Cake therefore has increased.
>
> Moreover, the handling of various cakes—copper cement and Cadmium sponge—at present is manual, thus giving rise to Cadmium losses. In addition Cadmium through solution loss is considered to be higher than expected by the consultants.

5.110. The low recovery efficiency even as compared to the expectation of the Management during 1970-71 to 1972-73 have been attributed by the Management (November, 1974) to bad functioning of Moore Filter Unit and excess impurities in the imported blende used during this period resulting in cadmium locked-up in the leached residue. It may be mentioned that the percentages of consumption of imported concentrates were 50.38, 58.34 and 35.08 respectively of the total consumption. The high percentage of recovery during the period upto March, 1969 (from January, 1968 when the plant went in partial production) and in 1969-70 (when the percentage of imported concentrates used was 12.38 per cent) has been stated by the Management to be due to more cadmium content in Zawar concentrates, less impurities and excellent functioning of the Moore Filter Unit in the initial stages. In 1973-74, however, when 99.21 per cent indigenous concentrates were consumed the recovery efficiency was less than that expected by the Management. The Management stated (November, 1974) that "the difference is mostly attributable to manual handling and transporting of cakes and sludges at various stages. M|s. Krebs are also carrying out experiments for necessary modifications of the flow sheets for our expansion to minimise this loss."

5.111. In a note submitted to the Committee the Management have now stated that in the expanded cadmium plant mechanical handling system for cakes has been incorporated and it is expected that higher cadmium loss at present due to manual handling and transportation, will be considerably reduced. The Moore Filter Unit is working better now due to the introduction of 3rd Moore Filter element.

5.112. The Committee note that the agreement entered into with M|s. Krebs indicated without any guarantee that about 72 per cent of cadmium in the concentrate would be recovered as electroylytic cadmium. The Management, however, assessed the expected output at 50 per cent, but the actual recovery since 1970-71 ranged between 31 per cent and 48 per cent has been even less than 50 per cent. The Committee are not sure of the basis on which the recovery efficiency has been fixed at 50 per cent, lower than that indicated by M|s. Krebs. The Committee are informed that indicated recovery of cadmium as 72 per cent was given by foreign consultants on the basis of certain calculated loss of cadmium through Moore Cake. The shortfall in the expected output is stated to be due to (i) higher iron content in the blende actually available, (ii) Manual handling of various cakes, (iii) loss of cadmium through solution being higher than expected and (iv) bad functioning of Moore Filter Unit during 1970-71 and 1971-72.

5.113. The Committee are informed that Moore Filter Unit is working better now due to the introduction of 3rd Moore Filter element; and in the expanded cadmium plant mechanical handling system for cake has been incorporated and it is expected that higher cadmium loss due to manual handling and transportation will be considerably reduced. The Committee recommend that in view of the introduction of mechanical handling system and improvement in Moore Filter Unit, the standard of recovery efficiency of cadmium should be worked out afresh on a realistic and scientific basis and the reasons for shortfall in actual recovery vis-a-vis the standard recovery analysed and suitable remedial steps taken promptly to ensure that the high level of efficiency is maintained.

I. Recovery efficiency of Zinc Cathodes Melting Furnace

5.114. The recovery of metal from cathodes according to the consultants is 95 per cent without guarantee. The Company, however, informed Government in December, 1972 that the conversion ratio between zinc cathodes to zinc ingots should normally be 96-97 percent. The quantity of zinc cathodes melted in the furnace, zinc powder and ingots produced, percentage of actual recovery to input, etc. during the years 1968-69 to 1974-75 are indicated as follows:

(Quantity in tonnes)

Year	Cathodes melted	Production			Percentage or recovery to input	Production at 95% as indicated by consultant without guarantee	Shortfall in production	Value of shortfall (Rs. in lakhs)
		Zinc powder	Zinc ingots	Total				
1968-69	14,743·065	293·901	13,408·124	13,702·025	92·94	14,005·85	303·82	81·20
1969-70	11,134·685	363·696	9,925·706	10,289·402	92·41	10,578·25	288·85	7·80
1970-71	10,487·590	435·119	9,497·179	9,932·298	94·70	9,963·60	31·30	·89
1971-72	13,624·993	552·610	12,124·920	12,677·530	93·05	12,943·75	266·82	7·60
1972-73	10,711·809	559·321	9,565·370	10,124·691	94·52	10,176·40	51·71	2·11
1973-74	3,015·849	605·800	2,146·930	2,752·730	91·97	2,865·20 (a)	112·47	9·80
1974-75	15,414·842	848·319	13,952·459	14,800·773	91·96	14,644·099		18·39
								36·40

NOTES (1) (a) Low recovery due to trouble in the Sice furnace.

(2) The above figures of production are exclusive of recovery from metallic dross.

5.115. It would appear from the above that even taking the lower percentage as indicated by the consultants there was shortfall in recovery every year till 1973-74. The value of such shortfall calculated at the selling price prevalent in the respective years worked out at Rs. 36.40 lakhs. It was stated by the Company (January, 1975) that low melting recovery was due to non-treatment of metallic dross on account of difficulties faced in Sice furnace. When asked whether the entire shortfall in recovery was due to non-treatment of metallic dross, the representative of the Ministry replied during evidence "yes, because they were not able to treat the metallic dross as it did not get into the furnace and the furnace had break-down, which ultimately shut down completely." The stock of metallic dross on 31st March, 1975 was approximately 941.2 M.T. containing 90 per cent total zinc and 60 per cent metallic zinc. *i.e.* total metallic zinc locked up in the form of screw conveyor product was 565 tonnes. In addition to this, approximately 1121.84 tonnes of zinc dross (oxide) was lying at the end of 1974-75. It has been stated that the total zinc in the dross is about 80 per cent in metallic and non-metallic form.

5.116. In a note submitted to the Board of Directors on 23rd March, 1973, it was stated that "the melting furnace had suffered a damage somewhere in 1969 and this condition deteriorated in January, 1971. Certain repairs were carried out and it was expected that this would keep the furnace going on a truncated capacity for a couple of years by which time the new furnace against the expansion project would be in position, thus enabling the old furnace to be completely dismantled and repaired with the help of the foreign expertise. With repeated power failure and also perhaps due to the fact that the life of the repaired furnace was over estimated by us, this furnace broke down completely on 12th February, 1973. Fresh efforts were made to repair it but at the end of the month it was found that this was no longer possible. While steps have already been taken to locate a furnace expert familiar with this type of equipment in France and Italy, we are exploring the possibilities of adopting alternative approaches to restore it to working order even at truncated capacity within a month or two. Meanwhile, firm orders have been placed on Demag of West Germany for supply of a new furnace against the expansion project but this furnace is not expected to be in position till the end of this calender year or early next year. Meanwhile, therefore, production of smelter will have to be confined to only the cathodes which have to be allotted to those consumers who can use cathodes in place of zinc ingots. Rourkela Steel Plant and few other major consumers are in a position to use cathodes and these details are being worked out. A separate report about this have been sent to Ministry."

5.117. The Management have now stated that a total quantity of zinc cathodes of 12,563 tonnes was sold to the parties from November, 1972 to July, 1974, with 5 per cent rebate on zinc ingots price

5.118. The Committee enquired if the sice melting furnace had since been repaired and put into operation. The Management have stated as follows:—

> "The special bricks required for the repair of Sice furnace which is an import substitute item, were procured with great difficulty. The special type of ramming mass, the copper cylinders and the cable have also been procured. Repair work of the furnace will be taken up shortly. Actual cost will be known when the repairs are actually completed with assistance of the refractory manufacturers.
>
> However, with the installation of Demag Furnace installed in May, 1974 there is no stock piling of zinc cathodes and the delay in the repair of furnace is not affecting normal production. After repair, this furnace has to be maintained "on heat" till the expected capacity in cathodes is established beyond the melting capacity of the Demag Furnace.

5.119. The Committee enquired if the causes of demage to the melting furnace had been investigated. The Management stated as follows:—

> "Causes for the damage to the furnace were investigated by the Company. No definite conclusion could be arrived at although two alternative reasons were suggested:
>
> (i) Frequent power interruptions causing thermal shocks. or
>
> (ii) Discontinuing of the water cooling system after the cooling pipes were found chocked by incrustation. Subsequently, Government appointed an expert from Director General of Technical Development to conduct

a detailed study but due to the highly specialised nature of furnace, the study was not undertaken.

5.120. During evidence the representative of the Ministry, however, stated as follows:—

> "A technical Director, who was a well-known authority on zinc, who was on the Board of Directors of Hindustan Zinc Ltd., was entrusted with this task and he brought out a report about that, which could not give or describe any authorities or persons responsible for this. But he broadly came to the conclusion that it was the power failure and chocking of pipes etc which prevented water circulation in to the circulation system."

5.121. When asked to explain as to how the Management had stated in a written reply that due to highly specialised nature of furnace the study by an expert of DGTD who was appointed for the purpose, was not undertaken, the witness stated that—

> "Dr. Parthasarthi gave his report to the management which came to us in the Ministry. We wanted to see whether we could get into the finer specific reasons, if we could. We gave it to the DGTD. The DGTD could not conduct the enquiries because of the highly specialised nature of the work."

5.122. In this connection, the Additional Secretary of the Ministry added during evidence:

> "We were not holding only a post-mortem. The Board of Directors had asked Dr. Parthasarathi to look into why it had happened. The other part of his assignment was to be forward looking, as to what to do now, what is the solution, what is the remedy. It was in this second context that the Ministry asked the DGTD if there was anybody who could look into the furnace and suggest remedies. It was like calling a second surgeon. This illustrates the very very specialised nature of the work. The DGTD wrote back asking whether they could enlist two or three people in the private sector. The Ministry said, "no objection; any Indian is welcome". In the mean while, it so happened that a top engineer of Demag of Germany, who was specialised in furnaces looked into it. It is not as if the DGTD was looking into Dr. Partha-

sarathi's report; it was second stream of expertise which was sought to be inducted."

5.123. The Committee enquired as to why no remedial measure was taken when the defect was detected in 1969. The witness stated as follows:—

> "In 1969 the first trouble they probably assessed was operating blockage. They did something & then it started working. Then the second breakdown occurred in January, 1971. It was in early 1973 that it broke down completely. So, it requires maturity & experience to recognise what seems to be an ordinary breakdown as something coming up."

5.124. A Director of the Hindustan Zinc Ltd. was requested by the Chairman, HZL, in March, 1973 to make a detailed and intensive study of the working of the induction furnace and related problems. In his report submitted in May, 1973 the Director, *inter alia* observed as follows:—

> "The first major breakdown occurred in 1969. This had basically nothing to do with the induction furnace itself but was an electrical accident caused as a result of careless maintenance and inadequate forethought. The management coped with this breakdown in an efficient manner.
>
> The second major breakdown took place in January, 1971 and here again appropriate and prompt action was taken to put back the furnace into working order, although with a truncated capacity, and this was what could have been done under the circumstances.
>
> Although it would be difficult to pinpoint the exact cause or causes of the two breakdowns in 1971 and 1973, it is most likely that these failures were caused by running the furnace without the specified demineralised water cooling system.
>
> Since there is no conclusive evidence to pinpoint the exact cause or causes for the breakdown of the furnace, it would perhaps be unfair to hold anyone specifically responsible for it. Nevertheless, the management, particularly during the early years of the operation of the

> furnace, have to accept a certain moral responsibility for the breakdown.

The melting losses in the furnace could and should be brought down to a reasonable level and every effort should be made to recycle the residue so that no metal values are lost at the cathode melting furnace. Various suggestions, given in the report, to reduce dross formation and reclaim zinc deserve serious consideration and if even one of them proves successful, it will brighten the Balance Sheet of the Company in the coming years. In addition, attempts should be made to utilise all the past zinc rich residues from the cathode melting furnace, now lying dumped outside, this would have an equivalent metal value of about 2500 tonnes."

J. Melting Furnace Purchased from M/s Demag of West Germany

5.125. The melting furnace purchased from M|s. Demag of West Germany at a cost of Rs. 14.19 lakhs was commissioned on 13th May, 1974.

The percentage of recovery to cathodes melted in the new Demag furnace during the period from May, 1974 to December, 1974 worked out to 93.6 per cent without taking into account the metallic dross which could not be charged during the period.

5.126. The Ministry further stated (May, 1975) that "the recovery efficiency depends on various factors. For example. if a pump is used instead of a ladle the surface skin of the molten zinc is not broken frequently and this exposes less zinc to oxidisation. Use of a pump entails use of automatic casting machines but the pump delivery is naturally a continuous process. If a pump is not used and more oxidisation is caused due to frequent tipping of the ladle use of ammonium chloride and rabbling also becomes more frequent. When this frequency increases the dross produced also increases and along with it, apart from zinc oxide significant quantity of metallic zinc comes out with the dross. This metallic zinc after screening can be recharged into the furnace but a vicious circle is thereafter created due to imbalancing melting characteristics.

5.127. The Demag furnace is new and it is not advisable to try melting of the screened zinc in it. In the past when the Sice furnace was working to truncated capacity, any effort to melt the metallic zinc from dross would, to that extent, reduce the cathode melting efficiency.

For these various reasons dross is being accumulated for metal recovery in the future depending upon the stability attained in the furnace, the dross will also be charged."

5.128. The Management have stated that the metallic dross was not charged in the new furnace in 1974-75 as this was commissioned only in July 1974. Since the new furnace is most of the time in use for cathode melting, only trials for charging the metallic dross were made. It was, however, observed that there was only marginal improvement in the metal recovery.

5.129. The Committee enquired if the German suppliers had given any indication regarding the expected recovery efficiency in the new furnace and if so, how it compared with the actual efficiency. The Management have stated as follows:—

> "As melting losses depend mainly on the quality of cathodes, the German suppliers had not given any indication regarding the expected recovery efficiency of Demag furnace, but by practice it has been established that the Demag furnaces operating elsewhere normally give a melting recovery of about 96|97 per cent from Zinc cathodes to liquid metal. Since we have not been retreating the entire quantity of zinc dross recovery obtained at present it cannot be taken as correct indication. After the entire quantity of zinc dross has been melted the average recovery over a period can be taken and it can thus be compared with recovery obtained by Demag furnaces elsewhere."

5.130. The Committee find that the recovery of metal from Zinc Cathode was 92.84 per cent, 92.41 per cent, 94.70 per cent, 93.05 per cent, 94.52 per cent, 91.97 per cent during the years 1968-69, 1969-70, 1970-71, 1971-72, 1972-73, 1973-74 respectively as against 95 per cent indicated by the consultants. The value of shortfall calculated at the selling price prevalent in the respective years worked out at Rs. 36.4 lakhs. It has been stated that the low melting recovery was due to non-treatment of metallic dross on account of difficulties faced in the Melting Furnace.

5.131. The Committee are informed that the Melting Furnace suffered a break-down in 1969 which was in the nature of "an electrical accident caused as a result of careless maintenance and inadequate fore-thought." The Management is stated to have "coped with this breakdown in an efficient manner." The second major

breakdown occurred in January, 1971 when certain repairs were carried out to put back the furnace into working order although with a truncated capacity and this was what, it is stated "could have been done under the circumstances." The furnace, however, broke down completely in February, 1973. One of the Directors of the Hindustan Zinc Ltd. who made a detailed and intensive study of the working of the furnace and related problems observed in his report (May 1973) that "although it would be difficult to pinpoint the exact cause or causes of the breakdowns in 1971 and 1973 it is most likely that these failures were caused by running the furnace without specified demineralised water cooling system".

5.132. The Committee regret to note that though the enquiry report of the Director was given by the Ministry to the DGTD, no action has been taken by the Ministry/Undertaking in the light of the aforesaid report. The Committee are informed that the DGTD could not conduct the enquiries because of the highly specialised nature of the work. The Committee fail to understand why the report could not have been considered by the Management/Board and suitable action initiated. The Committee would like that this aspect should be investigated and the Committee informed of the results. The Committee would also like to be informed of the action taken on the recommendations given in the Report. The Committee are informed that a "top engineer of Demag of Germany who has specialised in furnaces" has since looked into the matter. The Committee recommend that the Ministry/Undertaking should without delay examine in depth the question of break-down of the old furnace in the light of the findings in the Director's Report and the suggestions which might have been made by the German Engineer and take all possible measures to rectify the defects of the furnace, improve the standard of supervision and reorganise and tone up the management at all levels so as to ensure that not only the furnace is re-started at the earliest but is also maintained in good working condition.

5.133. The Committee find that the new Melting Furnace purchased from M/s. Demag of West Germany at a cost of Rs. 14.79 lakhs was commissioned in May, 1974. The percentage of recovery to cathodes melted in the new Demag furnace during 1974 worked out to 93.6 per cent without taking into account the metallic drosses which could not be charged during this period. They are, however, surprised to note that the furnace was accepted without getting any indication from the German suppliers about the expected recovery efficiency. It has been stated that "by practice it has been established that the Demag furnaces operating elsewhere normally give a

melting recovery of about 96/97 per cent from zinc cathodes to liquid metal. Since we have not been re-treating the entire quantity of zinc dross, recovery obtained at present cannot be taken as correct indication." The Committee would like to be informed about the reasons for not getting any such guarantee from the foreign supplier. They would like the Ministry/undertaking to determine, in consultation with the suppliers, the standard efficiency of the furnace with and without re-treatment of metallic dross so that the actual results can be compared with standards and remedial measures, if necessary, can be taken concurrently to avoid loss in production.

5.134. The Committee are informed that at the end of March, 1975, the stock of metallic dross with the undertaking was approximately 941 mt. and in addition 1121 tonnes of zinc dross (oxide) was lying with it. The Committee would like to know what steps are proposed to be taken by the undertaking to treat the metallic dross and recover zinc from it.

K. Production of Zinc Sulphate and Copper Sulphate

5.135. The Company has a pilot plant (set up in June, 1969 at a cost of Rs. 71,000) with a capacity of one tonne per day. This is being utilised since 1969-70 for the production of zinc sulphate. Zinc sulphate is produced from zinc dross arising in the smelting furnace and spent electrolyte coming from cell house. In order to utilise the increased production of zinc dross to be available after expansion of the smelter and also to use the copper cement sludge—a waste material—for the production of copper sulphate, the Board of Directors approved in January, 1972 the installation of a new plant for the production of zinc sulphate with a capacity of 5 tonnes per day and the modification of existing pilot plant for the production of copper sulphate at a total cost of Rs. 17 lakhs. The plants were expected to be ready by the second half of 1972 but the zinc sulphate plant was commissioned in February, 1975 and the copper sulphate plant is now (May, 1975) expected to be commissioned towards the end of 1975-76. Copper Cement sludge accumulated upto March, 1975 has been approximately 400 tonnes containing about 7 per cent copper.

5.136. Asked about the reasons for delay in the commissioning of zinc sulphate plant and Copper Sulphate Plant, the Management have stated as follows: —

> "At the time of making the proposal it was envisaged that simple open pan evaporators, similar to one being used

in pilot plant, would be used and plant would be erected and commissioned by August, 1972.

While doing the detailed engineering it was found that it would not be desirable to use pan evaporators due to poor thermal economy of these equipments. Accordingly other evaporators like spray drier, vertical tube evaporators etc. which are normally used in other chemical industry were considered. In absence of past operating experience with such type of evaporators for zinc sulphate manufacture and inverse solubility of Zinc Sulphate solution above 770C most of the indigenous manufacturers took considerable time in supplying the information required for undertaking detailed engineering. This ultimately delayed the final flow sheet and detailed engineering work which was completed only by May, 1973.

Order on M/s. De-Smet of Bombay for the Supply of Crystalliser was placed in November, 1973 with delivery in May, 1974. For the preparation of final drawings our Engineers collaborated with M/s. De-Smet and also advance of 30 per cent of total value of the order was given to them for the purchase of stainless steel with a view to get supply at the earliest as the civil work was nearing completion and other related equipment and material have been procure.

In February, 1974 about 3 months before the schedule delivery, a circular was received from M/s. De-Smet, informing us about the labour trouble and lock out declared in their Works. They requested to extend the delivery dated upto July, 1974.

In May, 1974 the Engineer deputed to chase the progress reported no progress and another agreement introducing penalty clause was made with them and July 30th, 1974 was fixed as final date for supply of both items. M/s. De-Smet who had consistant labour problem and further handicapped by power cut all over Maharashtra in 1974, sub-contracted the work to a fabricator at Saharanpur. With all our efforts the Crystalliser was received in October, 1974 and Evaporator on 26th December, 1974. Since other portion of the plant was ready, the trials were started within 15 days of the receipt of Evaporator, *i.e.* by mid January, 1975. Therefore, delay in supply of equipment was mainly responsible for late commissioning of plant by one year.

Work on renovation of old Zinc Sulphate plant to be converted into Copper Sulphate plant could be taken up only after commissioning of the new Zinc Sulphate plant. Since commissioning of new Zinc Sulphate plant was delayed—reasons mentioned above—copper sulphate plant renovation/modification obviously could not be taken up earlier. Copper sulphate of specifications as required in our existing process is being produced now."

5.137. The Committee are surprised to note that although the Board of Directors approved the installation of new zinc sulphate plant in January, 1972 and the Plant was expected to be commissioned by the second half of 1972, orders for the supply of Crystalliser was placed with M/s. De-Smet of Bombay in November, 1973, with delivery in May, 1974.

5.138. The Committee find that even after placing the order it was only in May, 1974 that an engineer was deputed to chose the progress of work and since no progress was made another agreement was entered into introducing a penalty clause and fixing 30th July, 1974 as the date for completion of supply.

The Committee find that as a result of delay in the supply of equipment by the firm the new zinc sulphate plant was commissioned only in February, 1975.

5.139. The Committee fail to understand as to why the agreement originally entered into could not provide for suitable penalties for delays in supply or non-fulfilment of contractual obligations. The Committee recommend that delay in placing the order and for the failure to provide for the penalty clause in agreement should be investigated in order to fix responsibility.

5.140. The Committee further note that the Board of Directors approved in January, 1972 the modification of the existing zinc sulphate plant to be converted into copper sulphate plant and this work was also expected to be completed by the second half of 1972. But as the renovation of the old zinc sulphate plant could only be taken up after the commissioning of the new zinc sulphate plant, this work therefore also got delayed.

5.141. The Committee would like to be informed about the action taken by the Management against the firm for the delay in the supply of equipment for new zinc sulphate plant.

L. Lead Smelter at Tundoo—Actual Production vis-a-vis targeted Production

5.142. According to the Management the lead smelter was capable of producing 3,600 tonnes of lead ingots per year after replacement of certain worn-out equipment and repairs to the various ducts and pipes. The replacement/repairs were completed as part of the first phase of modernisation in December, 1973/January, 1974. The table below indicates the annual production targets fixed by the Management and the actual production of lead during the years 1965-66 to 1974-75:—

(Quantities in tonnes)

Years	Targeted Production	Actual Production	Shortfall(—) Excess(+) over targets
1965-66 (from Oct. 65 to March 1966)		1,137·99	..
1966-67	..	2,514·55	
1967-68	N.A.	2,335·58	..
1968-69	1,800	1,853·39	(+) 53·39
1969-70	1,800	1,892·14	(+) 92·14
1970-71	2,000	1,719·20	(—) 280·80
1971-72	1,800	1,768·00	(—) 32·00
1972-73	2,500	2,892·00	(+) 392·00
1973-74	2,800	2,700·00	(—) 100·00
1974-75	4,200	4,109·00	(—) 91·00
1975-76 (upto Nov. 1975)	..	3,264·00	..

5.143. The actual production after completion of 1st Phase modernisation programme has exceeded the stablised capacity of 3600 MT/year.

5.144. The actual production showed a declining trend during 1968-69 to 1971-72 except a slight improvement in 1969-70 and 1971-72 as compared with the immediately preceding year. The production during 1972-73 was less than that in 1972-73. In January, 1975, Management stated that capacity utilisation of the lead smelter to the extent of 3,600 tonnes per year was prevented by:—

(1) poor condition of the plant in the earlier years after take over;

(2) non-availability of concentrates owing to:

(3) (i) low production of concentrates upto 1970-71; and

(ii) slow movement of concentrates from the mines in 1973-74.

5.145 Apart from the fact that the quantity of concentrates received from the mines gradually came down upto 1970-71, there was no even-flow of supplies which varied from month to month and ranged between 61.55 tonnes (August, 1968) to 1,523 tonnes (January, 1974). The smelter has storage capacity of about 500 tonnes of lead concentrates which is sufficient to meet the requirement for a month. In the absence of buffer stocks, the smelter was without concentrates for the following number of days during 1965-66 to 1973-74 and had, therefore, to be closed down:—

Year	Number of days for which there was no stock	Maximum number of days in a month for which there was no stock
1965-66	49	18 (February, 1966)
1966-67	..	..
1967-68	70	17 (March, 1968)
1968-69	105	25 (August, 1968)
1969-70	90	22 (September, 1969)
1970-71	96	18 (December, 1970)
1971-72	114	23 (June, 1971)
1972-73	..	..
1973-74	54	22 (December, 1973)

5.146. The slow movement of concentrates up to December, 1973 and production of lead concentrates in excess of the capacity of the lead smelter resulted in accumulation of stock (5,380 tonnes) at the close of the year 1973-74.

5.147. The stock of lead concentrates at mills on 31-3-1975 was 5,955 tonnes. This does not include about 3,000 tonnes of lead concentrates in transit and at Tundoo as on 31.3.1975 (1348.18 tonnes at Tundoo and 1651.10 tonnes in transit).

5.148. The Committee enquired if proper storage arrangement exist for lead concentrates at the mills so as to avoid any loss. The Management have stated as follows:—

> "Proper storage arrangements exist for both lead and zinc concentrates at the mills and no loss is sustained on account of lack of storage capacity."

5.149. The Committee note that the capacity utilisation of the lead smelter upto 1973-74 to the extent of 3,600 tonnes per year was prevented by (i) poor condition of the plant (ii) non-availability of concentrates owing to (a) low production of concentrates upto 1970-71 and (b) slow movement of concentrates from the mines in 1973-74. The Committee also find that the first phase of modernisation of the plant was completed in January, 1974 and the production increased to 4,109 tonnes during 1974-75 and has reached 3,264 MT during the first 8 months of 1975-76.

5.150. The Committee are informed that the flow of lead concentrates from the mines to the smelter has not been even and has varied from month to month and ranged between 61 tonnes (August, 1968) to 1,523 tonnes (January, 1974). The smelter is stated to have storage capacity of about 500 tonnes of lead concentrates which is sufficient to meet the requirements for a month. The Committee find that in the absence of buffer stock, the smelter was without concentrates for long periods during 1965-66 to 1973-74 and therefore had to be closed down from time to time. The Committee are led to the conclusion that there is lack of proper coordination between mines and the smelter which is regrettable. They recommend that the Management should investigate the reasons for uneven flow of cocentrates from mines to the smelter and take effective steps to place this matter on a sound footing so as to ensure that the smelter does not have to close down for want of concentrates. The Committee would like the Government also to examine whether the existing storage capacity is adequate in view of the improved capacity of the smelter.

M. Production Efficiency—Refined Lead

5.151. The Lead contents in the concentrates processed, the actual recovery of lead and the percentage of recovery to input during the years 1965-66 to 1974-75 are indicated below:—

(Figures in tonnes)

Particulars	22-10-65 to 31-3-67*	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
(A) Lead contents in the concentrates-in-process at the beginning of the year	312·14	550·59	74·27	201·11	176·30	212·49	251·81	228·58	239·11
(B) Lead contents in the concentrates fed during the year	5,016·85	2,545·30	2,396·12	2,334·51	2,177·72	2,165·28	3,677·83	3,491·72	5,243·55
(C) Total A+B	5,328·99	3,095·89	2,470·39	2,535·62	2,354·02	2,377·77	3,929·64	3,720·30	5,482·56
(D) Lead contents in the concentrates-in-process at the close of the year	550·59	74·27	201·11	176·30	212·49	251·81	228·58	239·01	281·00
(E) Total input of lead content (C)—(D)	4,778·40	3,021·62	2,269·28	2,359·32	2,141·53	2,125·96	3,701·06	3,481·29	5,201·56
(F) Actual recovery	3,543·25	2,335·58	1,853·39	1,892·14	1,719·20	1,768·88	2,891·50	2,700·20	4,109·50
(G) Percentage of recovery	74·15	77·29	81·68	80·20	80·28	83·20	78·12	77·56	79·05

NOTES : 1. The lead content in the concentrates fed for processing is ascertained through laboratory tests.

2. *Yearwise figures are not available with the Company.

3. While working out the above recovery efficiency, the opening and closing stocks of hard lead under process in the refinery have not been taken into account. The closing stock of hard lead at the end of 1967-68, 1968-69, 1969-70, 1970-71, 1971-72, 1972-73, 1973-74 and 1974-75 was, however, only 21, 13, 15, 40, 18, 11, 61 and 8 tonnes respectively. Closing stock as on 31st March, 1967 being not available.

5.152. It will be seen that the process loss of lead varied between 16.80 per cent and 25.85 per cent during these years. The percentage of loss which during 1960-61 to 1968-69 amounted to 24 per cent was considered to be on the very high side by the Altekar Committee and it was held that there was scope for reduction of the same.

5.153. The Committee enquired of the reasons for variations in process loss in different years have been analysed. The Management have stated as follows:—

> "The process losses in lead smelter are mainly through dust and slag. As Tundoo running of the blast furnaces is never smooth due to non-conventional design of the blast furnace and as such proper control of lead loss through slag is difficult. With increase in production during 1974-75 the loss of lead through dust and fume is high. This is because the filtering area of the bag house is inadequate to cope up with the production thus the variation in process loss."

5.154. Asked about the action taken on the observation of Altekar Committee regarding process loss, it has been stated as follows:—

> "Keeping in view the recommendations of the Technical Committee, the project report for 2nd phase expansion of the smelter has taken adequate care to minimise process loss and to aim at a recovery efficiency of about 90 per cent which is comparable to international standard.

5.155. The Committee find that the recovery of lead in the lead smelter varied between 74.15 per cent to 83.20 per cent upto 1974-75. These percentages did not, however, take into account hard lead under process in the refinery. The percentage of process loss which varied between 16 per cent and 25 per cent was considered high by the Altekar Committee which observed that there was scope for reduction in the loss. It has been stated that the process losses are mainly through dust and slag. With the increase in production in 1974-75, the loss of lead through dust and fume has been high because the filtering area of the bag house is inadequate to cope with the production. The Committee are informed that the 2nd phase expansion of the smelter which was expected to be completed by March, 1976 has taken care to minimise the process loss and to aim at recovery efficiency of about 90 per cent which is comparable to international standard. The Committee would like to be informed of the conclusive action taken to improve the recovery efficiency.

N. Transit Losses

5.156. The quantity of concentrates despatched from Zawar mines, the quantity received at Tundoo smelter and the shortage in transit during the years 1967-68 to 1974-75 are given as follows:—

Sl. No.		1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Quantity despatched . .	3,809·92	3,492·32	3,493·16	3,333·14	4,916·50	5,160·10	6,663·90	7,711·53
2.	Quantity in transit/under claims	420·31	320·00	241·01	225·75	494·00	435·70	1,161·79	2,598·17
3.	Net quantity receivable (1—2) .	3,389·61	3,172·32	3,252·15	3,107·39	4,422·50	4,724·40	5,502·11	7,376·64
4.	Quantity actually received	3,486·45	3,225·76	3,347·19	3,167·37	4,490·96	5,016·42	5,775·31	7,332·69
5.	Previous years despatches including in Item 4 . . .	221·25	386·23	271·44	230·00	196·00	494·00	426·45	1,054·83
6.	Receipt from current despatches	3,265·20	2,939·53	3,075·75	2,937·37	4,294·96	4,522·42	5,348·06	6,277·86
7.	Loss in transit (3—6) . .	124·41	232·79	176·40	170·02	127·54	201·98	153·25	43·95
8.	Percentage of loss in transit to despatches	3·27	6·66	5·05	5·01	2·77	3·87	2·58	0·59
9.	Cost per tonne of concentrates (RS) .	769·82	945·62	1,048·78	1,163·14	1,148·53	1,278·60	1,388·90	1,675·00
10.	Value of loss in transit as a item 7 (Rs. in lakhs) . . .	0·96	2·20	1·85	1·98	1·46	2·58	2·13	0·73

NOTE : Quantities indicated above are in dry weight.

5.157. The Ministry have stated (May, 1975) that "There being no weighing facilities of railway wagons either at Udaipur or at Tundoo siding the quantity despatched indicates the R|R weight only (which is issued on said to contain basis). It also involves transhipment en route from M/G wagons to B/G wagons resulting in handling and slippage losses. Therefore, the figures of quantity despatched and quantity received may not indicate the correct quantity either at despatching point or at receiving point."

5.158. The Committee enquired about the steps taken to minimise the transit losses. The Management have stated as follows:—

> "To minimise transit losses, the gunny bags which were used for packing lead concentrates were replaced by improved high density polythene bags in early, 1973. A system of standardisation of weight of these bags has also been introduced. In view of improved packing and standard weights of the bags, clear RR's are now issued by the Railways. Necessary instructions to further streamline the existing system to despatch lead concentrates from Zawar Mines to Tundoo by rail were issued in September, 1973.
>
> As a result of these measures, transit losses have been considerably reduced. These were 0.59 per cent during 1974-75, as against an average of 2 per cent during the years ending 31st March, 1974."

5.159. During evidence the Chairman, HZL stated as follows:—

> "In the case of lead concentrate, there was a change in the management of the beneficiation plant. Alwey's a new manager is keen to prove that everything was not all right with the predecessor. So, some shortage was reported. But we found out that the reporting system was such that the shortages excesses counterbalanced each other at the end of the year. There is no system of weighing the day-to-day production. Also, there was no continuous sampling. They used to sample every 8 hours and any variation in between could not be taken care of. But it has been found that at the end of the year the shortages counterbalanced. This has been going on since the MCI time and nobody thought of changing it. The new management took over in the mid-year and naturally found some shortage. But really there was no shortage and it was adjusted at the end of the year. This also was not brought to the

Board's specific notice. As a precaution we did provide for it in the financial accounts so that in case there is a genuine shortage, we may write it off, but it did not have to be written off that way."

5.160. The Committee find that there has been loss in transit in the quantities of concentrates despatched from Zawar mines and received at Tundoo. The total loss in value during 1967-68 to 1974-75 amounted to about Rs. 14 lakhs. The Committee regret to note that in spite of the huge loss every year the matter was not brought to the notice of the Board. The Committee fail to understand as to why the management have not gone into the reasons for the loss. The Committee are surprised to note that there were no weighing facilities of railway wagons either at Udaipur or at Tundoo siding and the quantity despatched indicated the R|R weight only which was issued on "said to contain" basis. The transhipment involved en route from M|G wagons to B|G wagons is also said to have resulted in handling and slippage losses. The Ministry have stated that the figures of quantity despatched and quantity received may not indicate the correct quantity either at despatching point or at receiving point. The Committee are not convinced of the argument that the shortages|excesses counter-balanced each other at the end of the year. They feel that there should have been proper weighing facilities at the stages of production despatch and receipt so that the exact losses could have been identified.

5.161. The Committee are informed that in order to minimise losses the gunny bags were replaced by improved high density polythene bags in early 1973 and a system of standardisation of weight of these bags has also been introduced. It has also been stated that clear RRs' are now being issued to Railway. As a result of these measures transit losses have been reduced from 2 per cent in 1973-74 to 0.59 per cent during 1974-75. The Committee need hardly stress that the new system should be kept under constant review in order to take suitable measures whenever discrepancies are noticed.

O. Production of Silver

5·162. The silver contents in the concentrates processed during the year, the silver actually recovered and the percentage of recovery input during 1965-66 to 1974-75 are indicated below :—

(Quantity in Kg.)

Particulars	22-10-1965 to 31-3-1967*	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
A. Quantity of silver in the work-in-progress at the beginning of the year .	376·730	543·730	150·337	395·735	376·690	1,142·780	1,036·800	829·810	1031·360
B. Quantity of silver in the concentrates fed during the year . . .	4,661.096	2,616·145	3,055·060	2,821·110	3,102·420	3,322·100	4,875·560	4,192·090	6418·874
C. Total (A+B)	5,037·826	3,159·875	3,205·397	3,216·845	3,479·110	4,464·880	5,912·360	5,021·900	7450·234
D. Silver contents in the concentrates in-process at the close of the year . .	543·730	150·337	395·735	376·690	1,142·780	1,036·800	829·810	1,031·360	846·600
E. Total input of silver (C—D) .	4,494·096	3,009·538	2,809·662	2,840·155	2,336·330	3,428·080	5,082·55	3,990·540	6603·634
F. Actual recovery of silver . . .	4,494·000	3,249·537	2,781·450	3,250·430	2,320·500	3,399·770	5,060·21	4,181·735	6557·663
G. Percentage of recovery . . .	99·9	107·97	99·00	114·44	98·55	99·18	99·56	104·79	99·3

NOTES :— 1.* Year-wise figures are not available with the Company.

2. The figures of actual recovery of silver given above for the years 1965—67, 1969-70, 1971-72, 1972-73, 1973-74 and 1974-75 include about 2,400 kgs., 1113 Kgs., 492·77 Kgs., 468 Kgs., 390·553 Kgs., 1,502·702 of silver respectively used in the production of high grade lead for zinc smelter.

5.163. The percentage of recovery has varied from year to year. The reasons for higher recovery of silver during 1967-68 and 1969-70 were explained by the Management (February, 1972) as follows:—

> "(a) One reason may be due to cumulative effect of inaccurate determination of weights of lead concentrates received here at Tundoo and incorrect sampling and assay of silver in concentrates.
>
> (b) The samples drawn from the secondaries are not always correct as the secondaries contain metallics also, and hence the assay of silver does not reflect current value.
>
> (c) The secondary inventories were given by eye estimates and not by actual weighment and this naturally lead to error in quantities and consequently silver content in them.

5.164. The Committee enquired if the Management were satisfied the manner in which higher recoveries of silver, a valuable by-product, has been explained. The Management have stated as follows:—

> "Steps have already been taken to correctly determine the quantity of silver input through concentrate. At the subsequent stages, however, determination of silver in the form of metallic dross continues to be carried on eye estimation basis. The company is not satisfied with such a procedure but has not been able to find out any better method so far."

5.165. When the Committee pointed out that the recovery of silver during 1967-68, 1969-70 and 1973-74 was more than 100 per cent. The Management in a written reply stated as follows:—

> "Recovery of 100 per cent or more is not only not realistic but is fallacious. Efforts continue to be made to evolve a suitable method for determination of exact recoveries."

5.166. The Committee find that the percentage of recovery of silver, a valuable by-product of the lead smelter, varied from year to year. During the years 1967-68, 1969-70 and 1973-74, it exceeded even 100 per cent. They could not understand as to how with an input of 3990.54 kg. of silver in 1973-74, for instance, 4181.735 kgs. of silver could be recovered, It has also been admitted by the Management that "recovery of 100 per cent or more is not only

not realistic but is fallacious". The Committee note that the Management themselves are not satisfied with the existing procedure regarding the determination of silver in the form of metallic dross which is done "on eye estimation basis", but they have not been able to find out any better method so far, despite efforts stated to have been made in this direction.

5.167. The Committee need hardly point out that it is very essential for the undertaking to follow procedures which reveal the efficiency of the silver recovery system accurately and do not produce admittedly unrealistic and "fallacious" figures and thus keen the Management in the dark about the real efficiency of the plant. They recommend that the lacunae in the existing procedures for determining the exact quantities of input and recovery of silver should be thoroughly investigated and a suitable method evolved in consultation with research organisations in the country or if necessary in consultation with foreign experts and adopted without delay.

P. Utilisation of Fuel and Fluxes

5.168. Norms of consumption of various fuel and fluxes per tonne of refined lead produced were tentatively fixed in September, 1971 on the basis of past experience and the actual consumptions during the years 1971-72, 1972-73 and 1973-74 was, by and large, near those norms. The final norms have not been fixed so far (April, 1975).

5.169. In this connection the Management have stated as follows:—

> "Since second phase of Lead Smelter Modernisation for increasing the production to 8000 tonnes of lead per year is under implementation and is likely to be completed by March, April, 1976. It will be more appropriate to fix the final norms of various fuel and fluxes per tonne of refined lead after completion of the above second phase of modernisation. The actual consumption during the year 1974-75 has also been, by and large, close to the tentative norms."

5.170. The Committee find that norms of Consumption of various fuel and fluxes per tonne of refined lead produced were tentatively

fixed in September, 1971 and the actual consumption during the years 1971-72 to 1974-75 is stated to be near those norms. The Committee fail to understand as to why final norms could not be fixed during all these years. The Committee would like that the norms should now be fixed on a scientific basis and the actual consumption vis-a-vis **the norms should be kept under constant watch and remedial measures taken wherever necessary.**

Q. Non Installation of Mining Equipment

5.171. Out of the mining equipment valuing Rs. 137 lakhs ordered by the MCI but cleared by the Company from the customs authorities in February, 1966, equipment valuing Rs. 48.38 lakhs approximately (comprising the equipment for main shaft, under cruster, power cables and trolly electric locos) were commissioned during 1971 to October, 1972.

5.172. The Management stated in December, 1971 that the above equipment could not be installed on account of the following reasons:—

> "The equipment imported by the MCI was lying at Bombay Port for 2/3 years. When brought to the mines it was found in damaged/rusted and corroded condition. In order to lodge claims against Railways and Insurance Companies, the equipment were not opened for installation. Missing parts and components as also these damaged in a fire during transit had to be imported for replacement. However, some of the equipment meant for the expansion and development of Mochia-Magra mines were used at Balaria mines to get additional production of ore but the remaining equipment imported for specific jobs could not be used elsewhere."

5.173. In regard to the claims lodged with the Railway and Insurance Companies the Management have stated as follows:—

> "When the consignment arrived at site the position of shortages/damages was found as under:—
>
> Shortages to the extent of Rs. 76,050.35 as per open deliveries taken from the Railways and the claims were lodged with the railways;

11 packages could not be delivered by the Western Railway for which shortage certificates were issued by them and claim lodged with the Western Railways valuing at Rs. 2,41,267.44;

One wagon caught fire on its way and seven packages in the wagon containing electrical and other equipments got burnt completely. A joint survey was carried out by the Western Railways and Hindustan Zinc Ltd. Officers and claims lodged with the Railways valuing at Rs. 6,05,822.81.

Thus total claims lodged with the Railways were Rs. 9,23,140.60."

The Insurance Surveyer/M/s. Toplis Harding Kapadia surveyed the entire lot of packages at destination and as per their inspection report of the losses/damages a total claim was forwarded to the Insurance Company amounting to Rs. 13,32,866.12 including the aforesaid railway claims of Rs. 9,23, 140.60. The railway authorities rejected the fire loss claim of Rs. 6,05,822.81 on the ground that it was an act of God. At that stage, the intervention of the Hon'ble Minister of Railways was also sought by the Company, as a result of which the Senior Officers of the Railways again discussed the entire matter with Hindustan Zinc Ltd. representatives. No tangible results could be achieved.

Since we are assured at the highest level of the railway administration to get the matter expedited it had not been taken to the Court of Law and in the meantime, the claims got timebarred.

As regards the claims lodged with the Insurance Companies, they had also not accepted them because the railways were repeatedly considering their liability for payment of compensation for the losses incurred by Hindustan Zinc Ltd.

After fresh persuasion in July, 1974, Insurance Companies have paid an *ad hoc* amount of Rs. 2.5 lakhs as a package deal towards the compensation for the losses/damages."

5.174. The Committee find that out of the mining equipment valuing Rs. 137 lakhs ordered by the MCI but cleared by HZL in February, 1966 equipment valuing Rs. 48.38 lakhs only was commissioned during 1971 to October, 1972. It has been stated that the equipment was lying at Bombay Port for 2/3 years and when brought to the mines, it was found in damaged/rusted and corroded condition. The Committee are informed that a total claim of Rs. 9,23,150 was lodged with the Railways for shortages as well as damages as a result of fire to one of the wagons. A total claim of Rs. 13,32,866 was forwarded to the Insurance Company who agreed to pay only Rs. 2.5 lakhs as a package deal towards the compensation for the losses/damages. It has been stated that the Railway authorities rejected the fire loss claim of Rs. 6,05,822 on the ground that "it was an act of God". The Committee are not sure whether the equipment was insured against fire and whether the intervention of the administrative Ministry was sought to settle claims with the Ministry of Railways. They feel that in view of the huge claim involved the matter should have been vigorously pursued at the level of the Ministry. The Committee recommend that the matter should be investigated with a view to pinpoint lapses and learn lessons for the future.

R. Non utilisation of Ball Mill equipment

5.175. Fourteen floatation cells purchased by the MCI at a cost of Rs. 1.50 lakhs for recovering pyrites in the ore. These cells were lying unutilised till December, 1973. The Management have stated (November, 1974) that these cells are now being utilised for beneficiation of rockphosphate ore from Maton mines since January, 1974.

5.176. The Committee enquired as to why these cells were not utilised for the purpose for which they were purchased by the MCI. The Management have stated as follows:—

> "These 14 floatation cells were specially designed to float pyrites and were imported by Metal Corporation of India. Since the pyrie content in ore was insufficient and that there was no suitable market for pyrites, these were not used for the purpose."

5.177. The Committee find that fourteen floatation cells were purchased by the MCI at a cost of Rs. 1.50 lakhs for recovering pyrites in the ore. These remained unutilised till December, 1973. It has been stated that since the pyrite content in ore was insufficient and

there was no suitable market for pyrite, these were not used for the purpose. It has been further stated that these cells are now being utilised for beneficiation of rockphosphate ore from Maton Mines since January, 1974. The Committee would like to be informed if the matter regarding sale of pyrites was taken up with Pyrites and Phosphates and Chemicals Ltd. before coming to the conclusion that there was no market for pyrites.

S. Plant Performance—Zinc Smelter

5·178. The following statement shows the percentage of idle hours to total hrs. and reasons for idle hrs. as compiled from monthly progress reports etc.

(*i*) *Roaster and Acid Plant.*

Particulars	1967-68 (Jan., '68 to March, '68)	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1. Percentage of idle hours to total hours . .	14·24	31·45	33·68	23·65	23·00	25·05	38·57	13·38
Reasons for idle hours :								
(*a*) Closure due to heavy stock of acid and superphosphate	N.A.	1,560	240	528	198	..	..	..
(*b*) Break down/repairs	N.A.	792	1,032	864	675	638	1,103	200
(*c*) Process troubles	N.A.	283	960	504	261	431	606	124
(*d*) Shortage of water/power, planned shut down etc.	N.A.	120	718	176	885	1,125	1,668	848

NOTE :—Planned shut down represents closure of the plant for major repairs and overhaul. Separate figures for planned shut down are not available.

(ii) Leaching and Purification Plant :

Particulars	1967-68 (Jan., '68 to March, '68)	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1. Percentage of hours to total hours	..	19·2	3·00	8·8	12·2	17·13	25·3	12·21
Reasons for Idle hours. :								
(*a*) Heavy stock of acid	..	1,680		360	..	..		..
(*b*) Shortage of water/power.	..	..	..	..	..	42	79	95
(*c*) Process troubles	..	..	..	..	192	565	359	58
(*d*) Breakdown/repairs	..	..	264	408	89	247	724	725
(*e*) Planned shut down	..	..	..	..	792	647	1,056	192

(iii) Electrolysis Plant :

Particulars	1968-69 (*) (Jan., '68 to March, 1969)	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Percentage of idle hours to total hours	16·3	8·9	11·4	9·7	7·4	18·6	7·29
Reasons for idle hours:							
(*a*) Break down/repairs	..	..	..		20	24	25
(*b*) Shortage of calcine solution	1,680	600	912	..	..	..	..
(*c*) Shortage of Power/Water and Minor repairs	102	181	90	44	79	129	358
(*d*) Planned shut down	..			606	533	1,251	250
(*e*) Process trouble	..	..	..	205	14	223	6

(*) Separate figures for the period January to March, 1968 are not available.

(*iv*) *Superphosphate Plant* :

Particulars	1967-68 (Oct., 1967 to March, 1968)	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Percentage of idle hours to total hours	49·52	39·37	47·89	42·84	38·68	54·66	69·50	42·43
Reasons for idle hours:								
(*a*) Process trouble	(*)1,011	1,447	1,987	1,498	1,428	3,148	2,281	1,711
(*b*) Plant maintenance								
(*c*) Breakdown/repairs								
(*d*) accumulation of stock								
(*e*) Shortage of a raw materials	395	629	604	823	837	..	1,732	561
(*f*) Shortage of power/water	44	223	206	181	..	44	46	206

(*) Exact Break up not readily available.

5.179. The actual number of hours worked in all the four plants was generally much less, particularly in case of Roaster and Acid Plant and Superphosphate Plant, than the normal working hours.

5.180. The shortfall in Roaster utilisation adversely affected the out put of the Leaching and Purification Plant and the Electrolysis Plant. The services of two experts from M/s. Lurgi Frankfurt were obtained in May, 1972 in order to improve the production of calcine qualitatively and quantitatively at a cost of Rs. 55,000. An expenditure of Rs. 40,000 was incurred on ducting besides other modifications in civil works etc. done departmentally. However, in January, 1973 the Board of Directors was informed that the Roaster had been showing unfavourable symptoms calling for shut down earlier than the scheduled time viz., April, 1973. The Roaster was, however, kept running with the help of patch repairs and was shut down on 11th April, 1973. It started functioning again in June, 1973 after repairs had been carried out at a cost of Rs. 5.77 lakhs.

5.181. The Committee find that the percentage of idle hours to total hours in the Roaster and Acid Plant, Leaching and Purification Plant, Electrolysis Plant and Super Phosphate Plant of Zinc Smelter varied between 13.38 per cent to 33.68 per cent, 12.2 to 25.3 per cent, 7.4 per cent to 18.6 per cent and 38.68 per cent to 69.50 per cent respectively. Although the position has improved during 1974-75, the position during the earlier years particularly during 1973-74 was far from satisfactory. During 1973-74, the percentage of idle hours to total hours in the 4 plants was to the extent of 38.57 per cent, 25.3 per cent, 18.6 per cent and 69.50 per cent respectively. Breakdowns/repairs, process loss and shortage of water/power, planned shut-down accounted for maximum loss of hours. The Committee would like that the reasons for abnormal loss of working hours should be analysed in depth with a view to take suitable remedial measures.

5.182. The Committee find that one of the reasons for idle hours in super phosphate plant was the shortage of raw materials. They see no reasons for not maintaining adequate buffer-stock of raw materials. The Committee hardly stress that suitable steps should now be taken to procure raw materials well in advance in order to ensure maximum utilisation of the plant.

5.183. The Committee are informed that short fall in Roaster utilisation adversely affected the output of the Leaching and Purifica-

tion Plant and Electrolysis Plant. They have already recommended that effective steps should be taken to ensure utilisation of the entire available capacity of the Roaster.

T. Plant performance—Lead smelter

5.184 The following statement shows the percentage of idle hrs. to total hrs. in three important sections of the lead smelter at Tundoo.

	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Sintering Plant			17·49	26·85	Not available			8·68	11·41	
Blast Furnace			34·97	44·11	45·48	55·07	55·92	35·22		8·6
Lead Refinery			18·85	31·23	30·68	34·25	37·43	18·90	25·48	0·6

5.185 No record is maintained by the Company to indicate the number of idle hours attributable to different reasons as is done in the case of zinc smelter. Asked about the reasons for not analysing the reasons for idle hours the Management have stated as follows:—

> "Tundoo Smelter is a labour intensive Plant. Blast furnace is very old and is being replaced with the second phase expansion. There are no machinery worth the name in respect of which such idle hours record need to be maintained. With progressive mechanisation connected with second phase expansion, this system will be introduced along with introduction of machinery.

5.186 The Committee find that the percentage of idle hours to total hours in the Lead Smelter varied between 8.68 per cent to 26.85 per cent in the Sintering Plant, between 8.6 per cent to 55.92 per cent in the Blast Furnace and between 0.6 per cent to 37.43 per cent in the Lead Refinery. The Committee are informed that "Tundoo Smelter is a labour intensive plant" and "there are no

machinery worth the name in respect of which such idle hours record need be available". It has been further stated that "with progressive mechanisation connected with second phase expansion, this system will be introduced along with introduction of machinery."

5.187 The Committee expect that with the completion of the second phase of expansion the system of analysing the reasons for idleness of machinery will be introduced on a scientific basis.

VI

MANPOWER ANALYSIS

A. Output Per Manshift (OMS)—Mines

6.1 (a) The following table indicates the output per manshift as estimated by the consultants, M/s. Penarroya (December, 1962) for Mochia-Magra mine and as given in the project report of Balaria mine:—

(in tonnes)

	Mochia-Magra Mine		Balaria Mine
	On the basis of existing practice of providing 2 helpers for each skilled worker	On the basis of normal conditions of working including the reduction of number of helpers from two to one for each skilled worker	
Mining .	2·2**	3·35*	2·32
Overall .	2·0**	3·00**	2·0

*A labour force of 624 men for underground and 700 men for underground and surface was recommended by the consultants on the assumption of normal conditions of working at Zawar mines including the reduction of the number of helpers from 2 to 1 for each skilled worker. They had expressed the view that under French and Italian conditions the labour force required for an output of 2,000 tonnes per day would be 250 or 260 men giving an output of 8 tonnes per manshift.

**On the basis of 2 helpers for each skilled worker the consultants recommended the increased underground labour force as 950 men and 1050 men for underground and surface together.

6.2 As against the above estimated output per manshift, the actual overall output per manshift as furnished by the Management in respect of the two mines during the years 1966-67 to 1974-75 was as follows. The mining output per manshift has not been worked out*:—

Year	Output per manshift in tonnes	
	Mochia-Magra Mine	Balaria Mine
1966-67	0·904	0·635
1967-68	1·129	0·840
1968-69	1·038	0·851
1969-70	0·995	1·047
1970-71	0·914	1·032
1971-72	0·996	0·997
1972-73	0·998	0·896
1973-74	1·271	0·878
1974-75	1·51	0·97

NOTE :—In calculating the output per manshift, the overtime hours have not been taken into account.

6.3 It will be seen that the output per manshift in Mochia-Magra Mine has generally come down from 1968-69 upto 1972-73 but it increased in 1973-74. In the case of Balaria mine, the output per manshift showed a downward trend from 1970-71.

6.4 The Ministry have stated (May, 1975) that "these figures are not indicative of the productivity of the work precisely. The figures have been arrived at by dividing the total ore production by the number of manshifts worked in the mine. No distinction has been made between the men employed on developmental works and those employed on production. In Mochia-Magra mine, for example, a significant mine development activity to raise the production capacity from 500 tonnes per day to 2,000 tonnes was exerted to with additional man-power, and therefore, there would be a dip in the OMS figure if the total manpower employed is taken into account. Same remarks apply to Balaria. OMS figures become comparable only after the mine has reached its stage of maturity and produce year after year different tonnages with different manpower employed on compensatory developmental works being rightfully included as production personnel."

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*At the time of factual verification the Management have stated that the OMS figures given by the consultants. M/s. Penarroya ((December, 1962) relate only to the lower level workings (new workings) where different methods of stoping with higher mechanisation were to be introduced and the OMS figure was expected to be reached on the 5th year of operation from the date of commencement of stoping operations. Since the stoping operation started in the end of 1972 this OMS will be attainable only in the end of 1977. The figure of actual OMS quoted in Para 6·2 for Central Mochia relate to the old Mine including the upper level workings where very little mechanisation exists. The figures are therefore, not comparable.

Regarding Balaria Mine OMS figures indicated in the Project Report prepared by HZL are to be reached when the mine is in full production and these figures cannot be compared with those obtained during construction phase of the mine.

6.5. It may be mentioned that the figures of OMS given in the above table are based on the information furnished by the Company. It was also stated in May, 1975 that "the break-up of the manpower between exploitation and development was always furnished by the Mines Manager for the purpose of booking the expenditure to the appropriate capital and revenue heads". It should, therefore, have been possible for the Management to calculate the OMS with reference to the men employed on ore production alone.

6.6 The Committee enquired as to why the mining output per manshift had not been worked out. The Chairman, HZL stated during evidence as follows:—

> "The output per manshift (OMS) is relevant for the purpose of the ore that is produced by the mine, but since the bulk of the employment till recently was mostly on development and since ore production was low, we did not want to distinguish between the two and we had combined them. Only when it was pointed out that the O.M.S. was falling in terms of ore production, we told Audit that it was not so and that it was rising. We have checked up. If we take the total ore production of the Zawar group and the total employment, whether it is employment on development work, on maintenance or any other work, we find that our productivity has increased from 0.41 to 0.73. This is, however, no way of doing it because one should not mix up development work with production work. Our O.M.S. as calculated now, after isolating the capital works men from the production men, has reached 1.8 from a figure of 0.9."

6.7 In a note submitted to the Committee the Ministry have stated as follows:—

> "In the past the company had been working out the overall output per Manshift which included the developmental

> work carried out in the mines. Under stable mining, conditions, this could be a reasonable index for the efficiency of mines. However, the developmental work carried out was very substantial, which lead to some distortion in the yearly trends of output per manshift. Hindustan Zinc Ltd. is being instructed to work out the accurate Mine output per manshift, overall output per manshift and the development productivity for each of the mines in operation under the company with a view to continuously maintain the improvement in these areas."

6.8 The Committee are surprised to find that Hindustan Zinc Ltd., had not worked out the mining output per man shift (OMS). The overall OMS has, however, been worked out. But the overall OMS figures are not indicative of the productivity precisely as no distinction has been made between the men employed on developmental works and those employed on production. As the break-up of the manpower between exploitation and development was always furnished by the Mines Manager for the purpose of booking the expenditure to the appropriate capital and revenue heads, the Committee see no reason why it was not possible for the Management to calculate OMS with reference to the men employed on ore production alone.

6.9. The Committee fail to understand as to how proper control was exercised by the Ministry/Management in the absence of accurate mine output per man shift. It is only now that the Ministry have issued instructions to HZL to work out the accurate mine output per man shift, overall output per man shift and the development productivity for each of the mines in operation with a view to continuously maintain improvement in these areas. The Committee hope that at least now the management would follow these instructions in letter and spirit.

6.10 The Committee also recommend that the reasons for shortfall in the actual OMS, if any, should be analysed so as to take remedial measures in order to improve productivity and thereby increase production.

B. Manpower in Zawar Mines

6.11 M/s IBCON were requested to undertake a study of manpower in Zawar Mines. They submitted 22 reports up to August, 1973 which indicated the following position:—

Sections	Actual strength (No.)	Standard strength as per report (No.)	Re-deployable surplus (No.)	Annual wage bill for the surplus labour at average current wage rates including overtime, provident fund bonus payment etc. (Rs. in lakhs)
1	2	3	4	5
Underground operations (March, 1971)	614	323	291	1·2
Surface operations (April, 1971) .	244	174	70	2·6
Ore Dressing Mills (975 tonnes per day capacity) (Sept., 1971) .	153	101	52(a)	1·82
Ore Dressing Mill (2,000 tonnes per day capacity) (Oct., 1971)		135		
Other sections (May 1, 1971 to November, 1972) . . .	433	321	112	(b)
	1444	1054	525	

NOTES 1. (a) The surplus labour force of 52 was expected to be absorbed against the strength recommended for the Ore Dressing Mill of 2,000 tonnes per day capacity.

2. The months within brackets in Col. 1 indicate the dates of submission of reports by M/s. IBCON. The exact date(s) on which the actual strength, as given in these reports, was employed has not been indicated.

3. The standard force proposed by M/s. IBCON for 'underground' and 'surface operations in mines is based on 650 tonnes of output per day.

4. (b) The saving has been indicated in certain cases while in others it has not been done.

6.12 The actual strength as on 31st March, 1975 *vis-a-vis* the strength as indicated by M/s. IBCON is given below:—

A. *Mochia Mines*:

Standard strength indicated by IBCON is as follows :—

Production Labour in Underground Mochia	Report No.	1	323
U.G. Service. Workshop and General Services at Mochia	,,	2	174
Compressor House	,,	3	11
Geology Deptt.	,,	16	31
Lower level	,,	19	291
Geology Deptt. Office	,,	20	2
Total			832

The total manpower on the rolls of Mochia Mines as on 31-3-1975 is 1415.

Following manpower in Mochia was not covered by IBCON studies:—

Designation	No.
Sweeper	7
Office Peon	3
Survey Boy	5
D.D. Helper	41
Chairman	5
Cook Asstt.	1
Daftries	1
Sr. D.D. Helper	7
Gate Checker	4
Clerks	13
Rigman 'B'	28
Office Asstt.	8
Jr. D.D. Operator	12
Mining Mate	33

Designation	No.
D.D. Operator	14
Survey Asstt. . .	3
Sr. Office Assistant	1
Draughtsman	1
Asstt. Mech. Foreman	5
Asstt. Elect. Forman	1
Asstt. Store Keeper	1
C. T. K.	1
Sr. Draughtsman	1
Sr. Steno	1
Sr. Survey Asstt. .	1
Mine Foreman	17
Instructor VTC	1
Mech. Foreman	3
Elect. Foreman	1
TOTAL	220

Hence the actual strength corresponding to standard strength of 832 workmen indicated by IBCON is 1415—220=1195.

B. *Ore Pressing Plant*

The standard strength indicated by IBCON for Ore Dressing Mills, 1000 T.P.D. and 2000 T.P.D. are as follows:—

1000 T.P.D. Mill Report No. 8 .	—101
2000 T.P.D. Mill Report No. 9 .	—135
	—236

Actual manpower in Mills is 335 workmen. Out of this 335 actual strength, 9 workmen on Clerical and drawing jobs were not covered by IBCON. Hence actual manpower corresponding to standard strength of 285 is 326.

C. *Surface Department*

The standard strength as indicated by IBCON in their various reports for surface departments are as follows:

	Report No.	Standard strength	
Power House	4	24	Post of Electrical Deptt. which is not fully covered in studies.
Central workshop	6	45	
Store	7	32	
Time Office	10	18	
Accounts	11	20	
Canteen	13	30	
Laboratory	14	11	
Sanitation & Medical	15	61	
Security	17	63	
Administration	18	12	
TOTAL	10 Reports	292	Excluding Power House Report

Man-power not covered by IBCON in their studies is as follows:

Deptt.	No.	
Civil	142	
Electrical	70	including power house
Planning	2	
Guest House	5	
Telephone Operator	4	
P.A. to Dy. G.M.	1	
Garage	66	
TOTAL	290	

Actual strength as on 31-3-1975 is 658 workmen. Hence against a standard strength of 292 the actual strength in surface deptts. is (658 —290)=368.

D. *Summary*

Not covered by IBCON		Covered by IBCON		Total
Balaria .	540	Mochia	1195	
Zawarmala	122	Mill .	326	
Mochia .	220	Surface	368	1889
Mill	9			
Surface .	290			1181
	1181		1889	3070

6.13. The Committee enquired about the action taken on the IBCON's Reports. The Management stated as follows:—

"I. *Mochia Mines*

The redeployable workmen in Mochia are (1195--832)=363. The reasons for this redeployable strength and action taken to utilise it are as follows:—

(i) IBCON assessment in most of the cases is based on a manning pattern consisting of one skilled worker+one unskilled worker *i.e.* Helper/Mazdoor etc., to form a gang. Against this our manning pattern is, generally one skilled worker+two unskilled workmen, to form a gang. While efforts have been made to reduce the gang strength from 1+2 to 1+1 not much could be achieved in this direction because of inability of workers to accept the increased physical work involved in doing so.

(ii) The IBCON studies are based on time study, therefore, redeployable strength is indicative of scope for increasing workload. To achieve this an incentive scheme has been introduced since February, 1974. The results have been encouraging. The norms of incentive scheme have been in general fixed at 70 per cent efficiency. It is found from the incentive records that now our manpower efficiency is of the order of 81.20 per cent (average from January 1975 to July 1975). The standard strength of 832 shown by IBCON is at 100 per cent efficiency. In case this manpower be reckoned at 81.2 per cent effciency of the redeployable is only (1195—832)=170.

(iii) The IBCON studies were confined to the working in Central Mochia alone. However, since then East and West wings of Mochia Deposits have also been opened up. For current workings for U.G. Mine operations and services a manpower of 36 and 59 has been assessed for East and West Mochia, respectively. Including the Maintenance and Surface services, 170 redeployable workmen indicated above is for East and West Mochia.

MILL:—The redeployable manpower in Mill as per IBCON assessment is (326—236)=90.

IBCON gave their recommendations before the 2000 TPD Mill was put in operation. Therefore, their recommendations were obviously based on experiences in 1000 TPD Mill in which most of the equipments are imported. But after commissioning of the indigenously equipped 2000 TPD Mill the IBCON recommendations were found to be unworkable. It was found that the maintenance and spillage problems further aggravated by frequent power interruptions was much more than encountered in 1000 TPD Mill. In view of this, Management appointed a Committee to review the manpower requirements of 2000 TPD Mill. It recommended 218 workmen for production staff in 2000 TPD and for maintenance of 1000 TPD & 2000 TPD Mills (Maintenance staff is common between the two Mills).

The IBCON also revised their manpower assessment for 1000 TPD Mill from 101 to 139 (This includes 80 workmen for maintenance).

The latest position of standard strength for Mill stands as follows:

Manpower for 1000 TPD production work IBCON recommendation	139—30=109
Manpower for 2000 TPD production work and 1000 and 2000 TPD Mills Maintenance work as recommended by Reviewing Committee	218
Total .	327

IBCON has not covered the clerical and drawing-staff in Mill fully. Out of 335 actual strength in Mill 9 workmen are on clerical and drawing jobs. Thus against the standard strength of 327 workmen for ore dressing mills as explained above the actual strength in position in Mill is 335—9-326 only.

Surface

The redeployable strength indicated by IBCON for surface departments is—

Actual strength .	+658
Manpower not covered in IBCON studies .	—290
Standard strength as given by IBCON	—292
	+76

The findings of IBCON reports in respect of surface departments were discussed and it was found that there was need for review of reports, because many items of work were not fully gone through by IBCON. The commissioning of 2000 TPD Mill, expansions of Balaria, Zawar Mall Baroi and East and West Mochia projects has taken place after IBCON studies. These latter growths have considerably increased the work in workshop, stores, laboratory, Accounts, etc.

In the light of above, the redeployable strength of 76 is more or less now considered to be fully absorbed and the new manpower sanctions are now given only after thorough examination of such proposals by Industrial Engineering Department.

C. Manpower Analysis—Zinc Smelter

6.14. The table below indicates the requirements of manpower as assessed (November, 1961) by the Consultants in the project report, that assessed by the Institute of Applied Manpower Research (August, 1969) and the actual average strength as at the end of last seven years:—

Year	As recommended by the Consultants	As recommended by I.A.M.R.	Actual yearly average	Excess over project report	Excess over IAMR recommendations
1968-69	694	851	1,178	484	327
1969-70	694	851	1,167	473	316
1970-71	694	851	1,030	336	179
1971-72	694	851	1,065	371	214
1972-73	694	851	1,001	307	150
1973-74	694	851	960	266	109
1974-75	694	851	962	268	111

6.15. In September, 1970, the Board of Directors felt that Institute of Applied Manpower Research did not have sufficient expertise or organisation to undertake the industrial studies of the nature required by the Company but observed that compared to the staff/workers strength in similar plants in other countries and also taking into account the strength of the private sector smelter of M/s. Cominco Binani, there was reason to believe that substantial economy in manpower was possible. Consequently the Board authorised a fresh study of manpower by M/s IBCON.

6.16. The Committee enquired on whose recommendation the Institute of Applied Manpower Research was entrusted with this study and the amount paid to the Institute for the work. The management have stated as follows:—

> "It was reported to be an Institute of repute and was on the approved list of Planning Commission. As such the Ministry had suggested the name of Institute for the purpose of study."

6.17. It has been stated that payment of Rs. 26,500 was made to the IAMR.

6.18. The Ministry have, however, stated as follows:—

> "From the records no specific instructions appear to have been issued by the Ministry to the company for engaging the

Institute of Applied Manpower Research to take up the study on manpower requirements. However, this Institute is a reputed one and was included in the list of consultants in the "Report of the Consultancy Evaluation Committee-1971" set up by Bureau of Public Enterprises for consultancy in General Management areas."

Study of Manpower by M/s IBCON

6.10. M/s. IBCON were asked in December, 1970 to undertake the study of manpower in Zinc Smelter, Zawar mines and Head office on a payment limited to Rs. 1,65,000 (at the rate of Rs. 6,000 per Consultant month subject to a maximum of 27 1/2 months). In respect of Zinc Smelter, they had submitted 18 reports up to August, 1973 which indicated the following position:—

	Actual strength	Standard strength as per IBCON report	Re-deployable surplus	Annual savings on re-deployable surplus (Rs. in lakhs)
Roaster and Acid Plant (May, 1971) .	98	48	50	2·20
Electrolysis Plant (June, 1971) . . .	120	77	43	1·52
Superphosphate Plant (February, 1971) .	130	47	83	2·63
Leaching and Purifications, Cadmium and Zinc Sulphate Plant (October, 1971) .	130	69	61	2·20
Other Departments (June, 1971 to September, 1971)	580	311	269	2·68†
	1058	552	266	11·23

NOTES: 1. Standard strength includes weekly off and leave reserve.

2. †Out of 14 departments, the savings, in monetary terms had not been indicated in respect of 10 departments.

3. The months within brackets in Col. 1 indicate the dates of submission of reports by M/s. IBCON. The exact date(s) on which the actual strength, as given in these reports, was employed has not been indicated. The standard strength proposed by M/s. IBCON is, however, based on current level of production and volume of work.

6.20. The additional cost on account of excess man employed in the Roaster and Acid Plant and the Electrolysis Plant and the Leaching and Purification, Cadmium and Zinc Sulphate Plant works out to Rs. 32.88 per tonne of zinc metal at the rated capacity of the smelter (18,000 tonnes); similarly, the incidence of extra cost on account of surplus manpower in Superphosphate Plant comes to Rs. 3.51 per tonne.

6.21. The Management have stated (August, 1972) that the report of the foreign consultants did not include the requirement of many service departments and gave only a broad indication of the designation of persons to be employed without prescribing the job descriptions. Adherence to the manpower pattern suggested by the consultants was not possible also due to the fact that the capacity of freshly recruited workmen and supervisors to develop multivalency in skill was highly restricted on account of inadequate training facilities and the general operating climate in the country discouraging such multiskills. Surplus manpower has been located and is being progressively redeployed. Job description study in depth has been made and jobs have also since been more clearly defined and rationalised.

6.22. As regards the action taken on the various reports (including those pertaining to Zawar mines) submitted by M/s. IBCON, the Management stated (November, 1974) as follows:—

> "Many of the reports are still under examination of the Industrial Engineering Department and other concerned departments of the Company. However, as earlier stated, manpower assessment by IBCON has, by and large, been accepted and surplus manpower is being deployed to other expansion/development schemes/works of the company."

6.23. The Committee enquired about the reasons for taking such a long time in examining the reports submitted by M/s. IBCON and if all the reports have since been examined and action taken thereon. The Management have stated as follows:—

> "As per the long term agreement with the Union, in September, 1971 it was decided that the Management may fix up the strength on the IBCON recommendations (submitted between 1971-72) taking into consideration its practicability, but the Union shall reserve its right to raise dispute wherein it may feel that the scope of work is unduly arduous or attracts higher categorisation. IBCON recommendations have therefore, been discussed with the Union in Joint Consultative Committee Meetings and meetings held

> with the office bearers on many occasions. Based on such discussions 35 operators were removed from Zinc Smelter and re-deployed in other units. Organisation charts of all the departments are in the process of being finalised with the Union on the basis of IBCON recommendations but suitably modified and changed depending on the practicability of adopting these recommendations."

6.24. Asked if M|s. IBCON had submitted any reports, it has been stated that "no report has been received from M|s. IBCON after August, 1973."

6.25. The actual strength as on 31st March, 1975 *vis-a-vis* the strength indicated by M|s. IBCON was stated as follows:—

	Actual strength in 71-72	Std. strength as per recommendation of IBCON	Strength as on 31-3-75
(i) Roaster & Acid (May, 1971) .	98	48	72
(ii) Zinc Electrolysis (June, 1971)	120	77	126
(iii) Superphosphate Plant (Feb. 71) . . .	130	47	99
(iv) Leaching & Purification and Zinc Sulphate Plant	130	69	109
(v) Other Departments	580	311	56
TOTAL	1058	552	972

Explaining the excess strength in a note after evidence, the undertaking stated:

> "As on 31-3-1975 the strength of Zinc Smelter was 972 workmen. M|s. IBCON recommendations was for the strength of 581 and not 552 as mentioned in the Report. The reasons for additional 391 workmen are as follows:—

6.26. After the study of M|s. IBCON, certain additional equipment have been installed and a number of work spots increased to have smooth operation. The man power requirement for the above works out to 105. M|s. IBCON recommendations were confined to operations in existence when the study was made. Since, then, maintenance of the equipment has increased with the ageing of the equipment. In addition, maintenance of colony, pump houses and other critical spots have been intensified for uninterrupted operations. This has helped in reducing the down time—thus making the equipment available for better utilisation. The additional strength comes to about 190 workmen. 20 workmen were engaged for the jobs which were earlier carried out by the contractors. M|s. IBCON's study was based on actual requirement of man power with additional deployment of man power only to take care of weekly off and leave reserve. It is well known that absenteeism is very high and to take care of this menace without resorting to high overtime will mean additional manpower. Management therefore thought desirable to keep extra manpower and use them against absenting workmen. Instead of taking drastic steps like retrenchment of extra manpower it was thought necessary to retain these workmen to make use of the expertise gained by them, after working for so many years in Zinc industry for the extra jobs which are likely to be created with the commissioning of expanded Smelter.

6.27. In a note submitted to the Committee the Ministry have, however, stated as follows:—

> "The undertaking, including the zinc smelter (then under construction), was taken over from the Metal Corporation of India and started as a new project of Hindustan Zinc Ltd. The strength of officers, staff and labour force grew up due to ad-hoc addition from time to time to meet the requirements of particular areas of activities. There was no scientific analysis of job requirements before filling up the various posts in the earlier years."

6.28. Asked about the extra expenditure involved and the effect of extra manpower on production and production cost and about the steps taken to divert the surplus manpower to other activities, it has been stated as follows:—

> "It has been computed that the additional cost on account of excess men employed in the roaster and acid plant etc. works out to Rs. 32.88 per tonne of zinc, and similar incidence in superphosphate plant comes to Rs. 3.51 per tonne. The quantity of cadmium produced being small, the effect of extra manpower on this metal is negligible. The excess strength is being gradually absorbed by the company in additional spots of work like zinc sulphate and copper sulphate plants, lead rolling mills etc. The bulk of the sur-

> plus still existing would be absorbed when the expansion of Debari zinc smelter capacity is commissioned. It may be mentioned that the additional strength employed have now been trained up in the various operations, and would be helpful in manning the critical areas not only in the expanded smelter at Debari, but also in the Visakhapatnam smelter."

6.29. The Committee note that as against the strength of 694 recommended by the consultants (1961) and of 851 assessed by the Institute of Applied Manpower Research (IAMR) (1969), the actual yearly average has varied from 961 to 1178 during the years 1968-69 to 1974-75. They are informed that the Board of Directors had felt in 1970 that IAMR (which was paid Rs. 26,500 for the study) did not have sufficient expertise or organisation to undertake the industrial studies of the nature required by the Undertaking. The Committee do not appreciate the appointment of IAMR for evaluation of staff standards in view of the fact that they are not reported to have expertise.

6.30. The Committee note that in 1970, M|S IBCON were asked to undertake a fresh study of manpower in zinc smelter, Zawar Mines and Head Office on payment of Rs. 1,65,000. They find that even according to the reports made by M|s IBCON in August, 1973, in regard to Zinc Smelter, the actual staff strength was much more than their assessment. They note that while according to the Audit, the strength recommended by M|s IBCON was 552, the Management have stated that M|s IBCON recommended a strength of 581. The Committee would like the Ministry to look into the matter and reconcile the position to avoid any confusion on this score. As against the standard strength of 581, recommended by M|s IBCON according to the Management, the actual strength was 1058 in 1970-71. The annual savings on redeployable surplus was then calculated at about Rs. 11 lakhs. The Management stated in August, 1972 that surplus manpower had been located and was being progressively redeployed in other expansion|development schemes of the Undertaking. The Committee are informed that as on 31st March, 1975, the actual strength had come down to 972 from 1058. They are further informed that the excess of 391 workmen over the recommended strength is due to increase in the number of work spots as a result of certain additional equipments, increased and intensified maintenance due to ageing and addition of equipments, departmental execution of certain jobs which were previously done by contractors and in view of the high percentage of absenteeism among workers.

6.31. The Committee regret to note that, as admitted by the Ministry, the strength of the officers, staff and labour force grew up due to ad hoc additions from time to time after take over of the company by Government and there was no scientific analysis of job requirements before filling up the various posts in earlier years. It is all the more regrettable that even after two expert organisations have carried out detailed scientific analysis of the manpower requirements of the undertaking, the picture is still far from clear.

6.32. The Committee are informed that the additional manpower employed have been trained up in the various operations and would be helpful in manning the critical areas not only in the expanded smelter at Debari, but also in the Visakhapatnam Smelter. The Committee need hardly stress that the employment of staff in excess of requirements not only adds to the wage bills but also results in low productivity, high cost of production and administrative and human problems. They recommend that the optimum staff strength for various jobs in mines and smelter should be determined without any further loss of time in the light of the recommendations of M|s IBCON and on the basis of scientific study of any subsequent developments and a concrete scheme to redeploy the surplus staff in the new units at Zawar or Debari or elsewhere drawn up and implemented according to a time-bound programme till every surplus hand is employed on productive work. They would like to be informed of the concrete steps taken in this regard.

6.33. The Committee further recommend that after optimum strength is fixed for various units, no addition to staff strength should be made without critical examination of the desirability and necessity for such additions.

6.34. The Committee are concerned to note that the absenteeism of workers in the smelter complex has assumed serious proportions. In 1975, for instance, the percentage of absenteeism ranged from 11 to 22 per cent. The Committee cannot over-emphasize the need for strict discipline and seriousness among working force and urge that the malady of absenteeism should be dealt with firmly and eradicated in the interest of achieving higher production at economic cost in the larger national interest.

VII

COSTING SYSTEM AND COST TREND

A. Costing System

7.1. Up to 1970-71 the Company followed the integrated cost and financial accounting. It is, however, maintaining separate cost records from 1971-72.

Mining Operations

7.2. The major cost centres are operation, maintenance and supervision. Under each cost centre, cost is compiled for labour, stores, electricity and others. The cost per tonne of one mined is arrived at by dividing the total expenditure under the various cost centres with the total quantity produced.

Milling Operations

7.3. The cost centres in the case of milling are operation (including crushing, grinding, floatation and filter plant), maintenance and supervision. Cost of milling per tonne is arrived at by dividing the expenditure under each cost centre with the quantity of ore treated. Expenditure on common services (*e.g.* water supply, power distribution, central stores), administrative services and overheads is collected separately and added to the mining and milling costs to arrive at the per tonne cost of concentrates produced.

Zinc Smelter

7.4. Process costing is followed in the zinc smelter with each plant|unit being the cost centres. Costs are grouped under four major categories: (i) production, (ii) service, (iii) general factory and administration, and (iv) selling and distribution. While cost of raw materials, direct wages, direct expenses (*viz.* spares, chemicals etc.) are booked directly under respective processes, the cost of power (on the basis of units consumed), the cost of water, transport, maintenance and laboratory (on the basis of technical estimates) and general factor overheads (in proportion to number of employees engaged) are allocated to the processes. Separate cost of production of by-products—cadmium, super-phosphate, sulphuric acid etc. is also worked out for purposes of internal control. However, credit is being afforded to the cost of zinc on the basis of sale realisation of by-products.

Lead smelter

7.5. There was no proper costing system prior to January, 1971 when the process costing system was introduced. During the period from July, 1966 to December, 1967 the cost per tonne of lead was worked out by dividing the total expenditure incurred during the quarter (after adding depreciation at the rate of Rs. 7,000 per month and interest and overhead expenses at the rate of Rs. 20,000 per month) by the total production of lead during the quarter. Neither the cost of silver, a by-product, was worked out separately, nor was its sale price deducted from the total expenditure. Further, no adjustment was made for the work-in-progress at the beginning of the quarter as well as at the end of the quarter.

7.6. From the quarter beginning from 1st January, 1971 cost is collected under the cost centres *viz.*, production, services and general factory and administration. The production cost centre is further sub-divided into (i) bedding and sintering (ii) blast furnace and (iii) lead refinery|silver refinery. Raw materials| inter-process materials, direct wages and fluxes and other stores consumed are directly debited to each cost centre. Cost of power (on the basis of number of units consumed), cost of water and laboratory (on the basis of services rendered), expenses on maintenance other than stores (on the basis of technical estimates) and factory overheads, depreciation and interest on capital (on the basis of ratios of sale value of lead produced and market value of silver contained in retort lead—an intermediate product, produced during the month) are allocated to the cost centres. Separate cost of silver is also worked out.

7.7. As the existing costing and information system was considered inadequate to meet the fast growing needs of the Company, the Administrative Staff College of India was requested in July, 1972 to make a survey and report on the methods of streamlining and modernising the existing system. The College submitted its survey report on the 13th October, 1972 and its final report on 6th September, 1973.

7.8. The Committee enquired if the Reports submitted by the Administrative Staff College alongwith action taken thereon were submitted to the Board of Directors. The Management have stated as follows:—

> "While offering their comments on the costing system followed by the Company, prior to their submission of the report, their recommendations were mainly as under:—
>
> (i) All divisions of the Company should be considered as profit centres at the budget time and for monthly reporting;
>
> (ii) Integrated accounts and cost code be developed for analysis of relevant cost and operations;
>
> (iii) A cost budget be compiled and prepared using standards and to make use of the same as the comparable basis for reporting actuals;
>
> (iv) For each activity standards in respect of quantity, yield, recovery and cost be prepared."

These recommendations were examined vis-a-vis the existing cost system and further improvements made in the intervening period for evolving suitable machine for introducing and implementing the recommendations, wherever practicable. The company has been accordingly compiling the cost data indicating complete details for following cost centres:

(a) Mining Operations

(b) Milling Operations

Mines

7.9. In the former the major cost centres are operation, maintenance and supervision. Under each cost centre, cost is compiled for labour, stores, electricity and others. The cost per tonne of ore is arrived at by dividing the total expenditure under the various cost centres with the total quantity produced. The cost centres in the case of milling are various operations including, crushing, grinding, floatation, maintenance and supervision.

7.10. The cost of milling per tonne is arrived at by dividing the expenditure under each cost centre with the quantity of ore treated. The expenditure on common services (for example water supply, power distribution central stores, administrative services and overhead) are collected separately and added to the milling cost to arrive at the per tonne cost of concentrates produced.

Zinc smelter

7.11. At Zinc Smelter, process costing is followed with each plant being the cost centre. Costs are grouped under major categories:—

(i) Production

(ii) Services

(iii) General Factory and Administration (including selling and distribution).

7.12. While the cost of raw materials, direct wages, direct expenses (namely spares and chemicals etc.) are booked directly under respective processes, the cost of power, of water, of transport, maintenance and laboratory and general factory overheads (in proportion to the number of employees engaged) are allocated to the various processes.

7.13. Separate cost of production (conversion cost) of by-products such as cadmium, Sulphuric acid, Super phosphate is also worked out for purposes of financial and other controls.

Lead smelter

7.14. Similarly, the process costing is followed in respect of another Smelter at Tundoo for the various cost centres, namely bedding and sintering, blast furnace, lead refining and silver refining.

7.15. Cost variances are being monthly analysed at the top management level and remedial action, wherever necessary, initiated and taken. The above cost centres are, however, not individually treated as profit centres and no separate profitability of each cost centres is worked out. The cost analysis for each centre is examined by the Plant Managers. The profitability is worked out for the end products. It is stated that no useful purpose is likely to be served by working out separate profitability of all cost centres. For proper control of costs, the cost budgets are prepared and compiled on the basis of the norms fixed by the Management. The actual cost with each cost centre is analysed with reference to such cost budgets. This enables the Management to locate the areas where the cost shows significant variance with that of budget costs.

7.16. The Company is not following the integrated system of accounts. The financial accounts and cost accounts are separately compiled. There are distinct codes of financial accounting and under these heads the expenditure is booked for compiling the cost data and cost accounts.

7.17. A cost budget is compiled and prepared every year based on norms as fixed by the Management for each material and services like power, water, wages, chemicals consumable stores.

7.18. It could be seen from the above that the system of cost compilation as recommended by the Administrative Staff College, is, by and large followed. Certain minute details indicated in the report, it is felt, cannot be implemented and acted upon as in mining industries such detailed and standard costing systems are normally not possible and time and labour involved may not be commensurate with the results aimed at.

7.19. The costing system in vogue in the Company and further changes and improvements are approved by the top executives and the Chairman-Managing Director. These are the methods and procedures evolved from time to time for efficient reporting system, distinct from any policy decisions and as such it was not considered necessary to place it before the Board of Directors. However, the Board and the Government are kept informed through periodical reports on the performance of each cost centre with the variance analysis etc.

7.20. Asked if the deficiencies noticed by the Administrative Staff College have since been removed from the system; it has been stated as under :—

> "The following were the comments made in the report of the Administrative Staff College, on the existing costing practice and procedures of the Company;
>
> (i) Salary and wage lists of the mines are not prepared according to the productive cost centres as labour is mobile;
>
> (ii) There is no work order at present for service departments for identifying as far as possible the work done for production departments;
>
> (iii) There are no effective standards for variable expenses or budget for fixed expenses.

(iv) Volume and efficiency variances are not ascertained.

(v) Usage variances are not separated from the rate variances.

(vi) Reporting monthly is in terms of product unit costs.

(vii) The cost sheets of the Smelter include semi-variable expenses as variable expenses.

(viii) Selling department cost of the Smelter are not ascertained separately.

(ix) Secondaries of the Lead Smelter are charged to productive department at estimated rates."

7.21. The Company is preparing and compiling cost budgets which take into account all variable and fixed expenses. The capacity variances (which includes volume and efficiency both) usage variances and rate variances, wherever applicable, are ascertained and analysed.

7.22. In regard to the salary and wages, semi-variable expenses, selling department costs, these cannot be called deficiencies. Since labour is mobile and the selling department cost are insignificant to be shown separately (these are included in the factory's overhead expenses) and the power expenses are variable expenses, these are being exhibited as such. The monthly cost reports are shown in terms of project unit cost.

7.23. While the metal content in the secondaries as per the analysis report of the laboratory is valued at the cost rate, quantity (weight) of such secondaries in the process can be only on estimated basis. There is a distinct system of job allocation of the work done in the service departments and the related cost of jobs done is properly accounted for. All maintenance and repair expenditure is taken into consideration to arrive at the cost of production.

7.24. The Committee enquired if the standard costing had been introduced in the Company for different activities. The Management have stated as follows:—

> "The costing system as visualised in the report is not feasible at this stage because of development and production going simultaneously alongwith large expansion activities.

> The fluctuation degree of impurities in the ore with varying percentage of metal content therein and frequent power trippings make the system all the more difficult. The practical system of budgeted costing, which can be followed with advantage in such industries, has been introduced and is consistently followed.
>
> It may be mentioned that the various cost system and procedures evolved by the Company were appreciated by the Ministry of Finance, Government of India and they had, in fact, thought of introducing similar systems in other Public Undertakings."

7.25. Asked if the variations between the actual cost and the standard cost were being analysed and remedial measures taken to control cost, it has been stated that "variance between actual and the budgeted cost are analysed regularly and remedial action taken wherever necessary."

7.26. From the year 1972-73 onwards the Company started working out budget cost under broad headings. From April, 1973 variations in actual cost are analysed under broad headings with reference to anticipations made in the budgeted cost for consideration at the top management level. The Company has also fixed norms for consumption of explosives, chemicals, drill roads etc. and the actual consumption is analysed with reference to these norms. However, no records indicating the basis for fixation of these norms and the authority with whose approval these norms were fixed could be shown.

7.27. The Committee enquired as to why the records indicating the basis for fixation of norms and authority therefor were not made available to Audit. The Management have stated as follows:—

> "Norms of consumption of various materials etc., had been laid down by the management based on the Project Reports and actual experience gained during the operation of the Plants. The variance and efficiency analysis was also done in the cost sheet. The main contention of audit was that there was not a proper documentation showing that these were approved by the Board or by the Chief Executive."

7.28. The Committee enquired as to how control was exercised perior to 1972-73 when the Company was not working out budgeted cost under broad headings. It has been stated as follows:—

> "Prior to 1972-73 the emphasis had been on increasing the production to the targeted production of 2000 tonnes of ore per day and the matching beneficiation facilities. The production at the Smelter had also not stabilised. The budgeted cost could not, therefore, be introduced earlier. However, the monthly cost sheets for various cost centres were prepared and the actuals were compared with the previous month's performance for exercising control on cost."

7.29. The Committee note that as the then existing costing and information system was considered inadequate to meet the fast growing needs of the undertaking, the Administrative Staff College of India was requested in July, 1972 to make a survey and report on the methods of streamlining and modernising the existing system. The report of the Administrative Staff College was received by the undertaking in September, 1973. The Committee are informed by the undertaking that the system of cost compilation as recommended by the Administrative Staff College is now by and large being followed. They, however, find that while all the divisions of the undertakiug were recommended to be considered as profit centres at the budget time and for monthly reporting, the cost centres in the mines, zinc smelter and lead smelter are still not being individually treated as profit centres and no separate profitability of each cost centre is being worked out. It is stated that the cost analysis for each centre is examined by the Plant Managers and the profitability is worked out for the end products. The Management have stated that no useful purpose is likely to be served by working out separate profitability of all cost centres.

7.30. The Committee regret to note that while the Administrative Staff College recommended that integrated accounts and cost Code be developed for analysis of relevant cost and operations, the undertaking is not following the integrated system of accounts and instead financial accounts and cost accounts are separately compiled. The Committee see no reason why an integrated system cannot be followed as in their opinion it facilities testing the accuracy of cost data and is more scientific.

7.31. The Committee also note that the system of standard costing as visualised in the report of the Administrative Staff College

is not considered feasible by the Management at this stage because of development and production going simultaneously alongwies large expansion activities. The Management, it is stated, have introduced the practical system of budgeted cost and this is stated to be constantly followed. The Committee are informed that the various cost systems and procedures evolved by the undertaking were appreciated by the Ministry of Finance, Government of India, and they had, in fact, thought of introducing similar system in other public undertakings.

7.32. The Committee also regret to note that, as admitted by the undertaking, certain other minute details indicated in the report of the Administrative Staff College are not being implemented and acted upon on the plea that in mining industries such details and standard costing systems are not normally possible and time and labour involved may not be commensurate with the results aimed at.

7.33. The Committee would like the Ministry to critically examine the costing system actually introduced in the undertaking 1vis-a-vis the recommendations made by the Administrative Staff College and inform the Committee as to whether the system introduced by the Management is adequate to meet the fast growing needs of the undertaking and keep the cost under effective control and whether it has proved useful to the Management to locate areas of weakness and effect economies where the cost were found higher than the norms.

7.34. The Committee are informed that the costing system in vogue in the company and further changes and improvements were approved by the top executives and the Chairman-cum-Managing Director. The Management have stated that these are the methods and procedure evolved from time to time for efficient reporting system distinct from any policy decisions and as such it was not considered necessary to place these matters before the Board of Directors though the Board and the Government are kept informed through periodical reports on the performance of each cost centre with the variance analysis etc.

7.35. The Committee are not convinced by the reasons advanced by the Management for not placing the cost system introduced

in the company before the Board of Directors. As the Board of Directors is responsible for the all round efficient working of the Undertaking, the Committee see no reason why these matters should not have been placed before the Board so that Board may examine the effectiveness and utility of the various methods and procedures evolved and introduced in this regard by the Management. They would like this to be done without any further delay and the Committee informed of the reactions of the Board in this regard.

7.36. The Committee note that w.e.f. 1972-73, the Company has fixed certain norms for consumption of materials like explosives, chemicals, drill rods, etc. According to the Management these were based on project reports and actual experience gained, during operation of the plant. The Committee recommend that the norms for consumption of materials should be scientifically fixed based on appropriate data and approved by the Board. The Board should also critically review the variance from the norms with a view to suggesting suitable remedial measures for effecting economies where necessary. The norms should be kept under constant and continuous review by Management and results brought to the notice of the Board from time to time.

B. Cost Trend

(i) (a) *Cost of mining of ore*

7.37. The cost of mining of ore per tonne from 1969-70 is indicated below :—

Year	Cost per tonne Rs.
1969-70	23·80
1970-71	28·09
1971-72	24·62
1972-73	32·79
1973-74	40·34
1974-75	49·99

(ii) (b) *Concentrates*

7.38. The actual cost of production of concentrates (both zinc and lead concentrates) is given below :—

Year	Cost per tonne Rs.
1965-67 (1-10-65 to 31-3-67) .	Not available
1967-68	769·82
1968-69	945·62
1969-70	1,048·8
1970-71	1,163·14
1971-72	1,148·53
1972-73	1,278·60
1973-74	1,395·42
1974-75	1,504·05

(iii) (c) *Zinc ingots and refined lead*

7.39. The actual cost of sales of zinc ingots and refined lead is given below :—

Year	Zinc Ingots (Rs. per tonne)	Refined Lead (Rs. per tonne)
1965-67 (1-10-65 to 31-3-67) . . .	..	1,688·08
1967-68	..	1,799·86
1968-69	3,123·08	2,182·83
1969-70	4,262·43	3,243·92
1970-71	4,221·14	3,568·40
1971-72	3,918·71	3,031·75
1972-73	3,982·77	3,136·34
1973-74	4,823·52	3,438·11
1974-75	4,133·32	3,588·52

NOTES : 1. The cost of production of concentrates for the period from 1-10-65 to 31-3-67 is not available with the Company as indicated in sub-para (b) above. For the purpose of ascertaining the cost of sales of refined lead for this period, the Company worked out the cost of production concentrates on the basis of expenditure booked in financial accounts.

2. Figures of cost of sales have been given in the table as separate figures of selling and distribution overheads have not been worked out by the Company.

7.40. It will be seen from the foregoing trend of cost that the cost of mining has been increasing from year to year excepting in 1971-72. The cost of mining ore and the metal content in ore are important factors which influence the cost of production of end products. The decline in grade of metal in feed had its effect in the form of increased cost of production. Similarly, the recovery efficiency in the mills and in the smelters had its effect on cost, apart from increase in the salaries and wages and other elements of cost. The extent of capacity utilisation, the composition of input in the form of indigenous and imported concentrates, the iron content in concentrates etc. also had their effect on cost of production in different years. The budgeted cost worked out by the Company did not serve the purpose of standard cost. The Company could not show records* indicating that the budgeted cost had been determined after taking into account :—

(i) expected metal content in ore.

(ii) anticipated metal content in concentrates;

(iii) recovery efficiency in the beneficiation plants.

(iv) recovery efficiency in the smelter;

(v) expected O.M.S. and wages per employee;

(vi) number of men required in beneficiation plant and smelter and average wages per employee;

(vii) rate of consumption of important consumable stores and chemicals and the prices thereof and expected capacity utilisation, etc.

7.41. In the absence of such projections and comparision of the actuals with reference to the projections, the system of costing did not serve as an effective instrument of control.

7.42. The Management stated in May, 1975 that "....The budgeted cost for 1975-76 have been prepared after taking into consideration the various factors indicated by audit*, i.e.

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*At the time of factual verification the Management have stated that "this system (Para 7·42) that is being followed by the Management during the year 1975-76 was also followed in the year 1973-74 and 1974-75. The metal content in ore, recovery efficiency in the beneficiation plant and metal content of the concentrate are all taken into account for determining the ratio between ore to concentrate for the purpose of budgeting. These figures were shown to the audit and are also available regularly in the Broad papers."

(i) expected metal content in ore.

(ii) anticipated metal content in concentrate;

(iii) recovery efficiency in the benefication plants;

(iv) recovery efficiency in the smelter;

(v) rate of consumption of important consumable store and chemicals and the prices thereof;

(vi) expected capacity utilisation of mills, smelter and expected ore production.

7.43. As regards (i) number of men required for mining and average wages (OMS also), (ii) Number of men required in beneficiation plant and smelter and average wages-the position is that the number of men required at various units are based on requirements/study and the wages are based on agreements entered into with the unions."

7.44. The Committee enquired as to why the budgeted cost on proper lines was not prepared before 1975-76 so as to compare actual cost these against in order to exercise control on costs. The Management have stated that before the introduction of yearly budgeted cost actual monthly costs were compared with previous month's performance.

7.45. Explaining the reasons for gradual increase in the cost of mining of ore, production of concentrates of zinc ingots & refined lead, the Management have stated as follows:—

Main reasons for the increase in cost are as follows:—

(i) Increase in the purchase cost of raw materials and consumables.

(ii) Inerease in salary and wages due to annual increments and increase in the cost of living index.

(iii) Fluctuation in the metal content in ore.

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*At the time of factual verification the Management stated that the company started working out budgeted cost as early as 1972-73. It was however, from 1973-74 that significant changes were introduced into the system and all inadequacies of the earlier system removed. Sufficient evidence has been led towards this to prove that these budgetted costs (1973-74 on wards) served the purpose of standard cost in as much as (a) expected metal content in ore (b) anticipated metal content in concentrate and (c) recovery efficiency in the beneficiation plant have invariably and clearly been taken into account in arriving at the ore to concente ratios for each year. Similarly, recovery efficiency in the smelter is clearly and distinctly taken care of when working the quality of concentrates required for the zinc Production

(iv) Increase in the unit cost of power.

(v) Increase in power failure and interruptions, resulting abnormal increase in maintenance cost.

(vi) Increase in the financing charges because of the increase in interest charges.

(vii) Substantial increase in depreciation on account of large investments in new Plants.

7.46. Asked about the action taken to control costs. The Ministry in a note submitted to the Committee have stated as follows:—

> "The cost of production of the different products is reported in the quarterly financial reports submitted to the Government. These are examined and the Company is advised to take steps to control the costs.
>
> Various factors have contributed to the increase in the cost of mining of ore, production of concentrates and production of zinc and lead metals, the major ones being increase in (i) wages and salaries; (ii) costs of inputs; (iii) power tariff; (iv) higher incidence of depreciation and interest because of the induction of new plant and equipments in various areas of the activities of the company and (v) gradual increase in cost of ore production inherent in underground mining because of the exploitation at deeper. levels."

7.47. The Study Team of the Bureau of Public Enterprises which submitted their Report in 1969 on the performance of Hindustan Zinc Ltd., *inter alia* observed as follows:—

> "The cost of raising and milling the ore is *prima-facie* high and the Committee would recommend that it is necessary for the company to carry out a special and detailed study of its mining costs so as to bring it down as early as possible. The reduction of rupee of one per tonne in the cost of mining would reduce the cost of production of zinc by about Rs. 27/- per tonne. A reduction of rupee one per tonne in the raising and milling of ore would increase the surplus by about Rs. 6 lakhs. The economic viability of the project depends entirely on the cost of raising and milling the ore and the need, therefore, for reduction the cost of production of the ore is paramount."

7.48. The Committee enquired if any special detailed study had been carried out. In a note submitted to the Committee, the Ministry have stated as follows:—

> "No special detailed study has been carried out on the cost of raising and milling of ore, based on the observations of the Study Team. Efforts were, however, made to reduce the costs of production by (i) increase in the OMS and (ii) changes in the lay out to eliminate labour intensive arrangements wherever possible. The management also felt that the observations of the Study Team were somewhat of a general nature and increases in cost had also been on account of fall in the metal content of the ore."

7.49. It has been reported that in April, 1973, the Ministry of Steel and Mines sent to the Company an extract of a note received by them while considering the question of revision of the selling price of indigenous zinc. The note *inter alia* stated as follows:—

> "......It, however, appears that the cost of production of H.Z.L. is extremely high and no serious exercise has so far been undertaken by the Company to find out how far the actual costs of production are reasonable and to locate area where economies can be secured by increased operational and other efficiencies. HZL does not import concentrates and, therefore, avoids paying nearly Rs. 800-900 per tonne of metal as duty on the imported concentrates. Keeping this in mind the financial performance of H.Z.L. during the year 1972-73 cannot be considered satisfactory.
>
> The danger in the situation where H.Z.L. is allowed the ruling M.M.T.C. price is that inefficiencies in operations would be covered up by the fact that the Company will, in future inevitably make profits..............In such a situation, the Company has no incentive for keeping its costs under continuous scrutiny and exercising expenditure control. In this context, it may be stated that the Finance Wing of the Company is rather ineffective at present. We may, therefore, inform the Company that an immediate exercise should be undertaken by them to compare their actual costs of production with those estimated as normal by the Bureau of Industrial Costs and Prices, to examine the reasons for the differences and to arrive at an optimum cost of production for 1973-74. The Company should thereafter strive to attain that cost of production and examine every reason for excess over the

'standard'. We may ask the Company to complete this exercise before the end of May 1973. We may inform H.Z.L. that till such time as the optimum cost is determined, under no circumstances the cost of production should be allowed to exceed the actuals for 1972-73 and in case a situation is likely to arise, the matter should be specifically brought to the notice of Government for necessary lirections."

7.50. The Committee enquired about the action taken on the above note. The Management have stated that "the Ministry was requested on 30th April, 1973 for necessary clarification and details. These are awaited."

7.51. In this connection the Ministry have, however, stated as follows:—

> "By his letter dated 30-4-1973 the C.M.D. asked for a copy of the report of the BICP. A reply was sent on 18-5-73 to the company informing that the detailed parameters of the BICP estimates of costs of production, based on which a fair price had been recommended, were already available with the company's Financial Advisor. The Company was requested to take up a detailed examination of the costs of production. Though the letter dated 18-5-73 was not specifically replied by the HZL, in spite of reminders, by his letter dated 17-7-74 the CMD informed the Department that norms of cost of production have been prepared beginning with the quarter July-September 1973 and submitted to the Board and the Government."

7.52. The Committee pointed out that the actual cost of sales of Zinc ingot during 1973-74 increased to Rs. 4823.52 per tonne from Rs. 3982.77 in 1972-73. They enquired if the matter was reported to the Ministry. The Management stated as follows:—

> "There is no significant increase in the gross cost of production. It was Rs. 6257/- in 1973-74 as against Rs. 6223/- in 1972-73. Increase in net cost as brought out is mainly due to less credit on account of sale price of by-products during 1973-74, whichever Rs. 1433/- in 1973-74 as against Rs. 2240/- in 1972-73. Since the Board and the Ministry are always kept informed of the performance and cost trends through quarterly reports and that all remedial actions are taken for any unexplained increase in cost, no

separate report on such matters to the Government is considered necessary. There are no such directions also."

7.53. The Committee note that there has been a gradual increase in the cost of mining of ore, production of concentrates, zinc ingots and refined lead except in the case of zinc ingots during 1974-75 when the cost was less than that in the previous year and in 1969-70 and 1970-71. Though the study team of the Bureau of Public Enterprises had observed as far back as 1969 that the cost of raising and milling the ore was prima-facie high and it was necessary for the HZL to carry out a special and detailed study of its mining costs so as to bring it down as early as possible, the Committee are surprised to find that no such study has been carried out and the Management had felt that the observation of the Study Team was somewhat general in nature and the increase in cost had also been on account of the fall in the metal content of the ore. The Committee cannot understand as to how without making any study, the Management came to the conclusion that increase in cost was mainly due to fall in the metal content of the ore.

7.54. It has been stated that norms of cost of production have been prepared beginning with the quarter July-September, 1973 and submitted to the Board and the Government.

The Committee would like to know the outcome of the studies into the norms of cost of production reported to have been made for the quarter July-September, 1973 and action taken in pursuance of the studies to control cost of production. The Committee would also like to be informed of the steps taken to tone up the working of the Finance Wing of the Undertaking so as to make it effective and dynamic.

7.55. The Committee need hardly point out that the Management have a special responsibility to keep a close watch on the cost of production. They recommend that the question of cost of production should be a standing item on the agenda of the Board meetings to enable the Board to review the position critically, identify the areas where economies can be affected and watch the results of the remedial measures taken in this regard.

VIII

PRICING POLICY & SALES PERFORMANCE

A. Pricing Policy

(i) *Zinc Ingots*

8.1. Prior to the taking over of the undertaking in October, 1965, the zinc concentrates were being sent by M.C.I. to Japan for conversion into zinc metal as they had no zinc smelter of their own. The construction of the zinc smelter started by M.C.I. was completed by the Company and it went into partial production in January, 1968. During October, 1965 to December, 1965, the zinc concentrates produced were stocked by the Company without any further processing except for some quantity sold to M/s. Cominco Binani.

8.2. At the time of acquisition, the distribution and pricing of zinc was regulated under the Scarce Industrial Materials Control Order 1965. After withdrawal of the Control Order in June, 1966, the Board of Directors of the Company decided to refer the matter of future pricing to Government for advice and also contacted the Minerals and Metal Trading Corporation of India Limited to ascertain the principles followed by them in fixing the selling price of imported zinc metal. According to the Company's estimate (August, 1966) the landed cost of zinc metal (including excise/import duty) roughly worked out to Rs. 2,950 to Rs. 3,000 per tonne. Since the zinc concentrates had been lying in stock with the Company for a long time and it had incurred considerable expenditure on godown rent and interest charges, it was proposed by the Management to fix the price of zinc at Rs. 3,250 per tonne ex-godown (inclusive of a profit margin of 3½ per cent over the landed cost and also to make provision for normal fluctuations in the LME market prices). In January, 1967, however, Government advised that in the absence of information regarding the all inclusive cost of production of zinc to the Company the sale price should be such that the Company was not put to loss while at the same time undue advantage was not taken of the very high prices artificially ruling in the market.

8.3. Accordingly the sale price of zinc was fixed by the Company in May-June, 1968 in consultation with Government at Rs. 2,700 per tonne. This price was to be operative upto 31st March, 1969 and was based on full capacity working of the zinc smelter using Zawar concentrates, partly from accumulated stocks and partly from current production and taking credit for superphosphate at Rs. 280 per tonne and cadmium at Rs 50 per Kg.

8.4. In view of the increase in cost of indigenous concentrates and the need for import of concentrates to operate the zinc smelter at full capacity, the Company approached Government in April, 1969 for a price increase of Rs. 100 per tonne from April, 1969. Shortly thereafter (May, 1969), the Company and M/s. Cominco Binani, the only other producer of zinc metal in the country, made joint representation to Government for an increase of Rs. 150 per tonne over the prevailing price of Rs. 2,700 per tonne in view of the fact that the ruling open market price was around Rs. 3,900 per tonne and that the imported high grade zinc would cost about £ 125-10-0 (Rs. 2,375 approximately) per tonne c.i.f. In February, 1970, Government agreed to a price increase of Rs. 150 per tonne over the prevailing price to take effect from 1st February, 1970 and subject to the condition that a sum of Rs. 100 per tonne would be kept separately for developmental purposes.

8.5. In a note submitted to the Committee the Ministry have now stated as follows:—

"The condition regarding funding of Rs. 100/- per tonne of zinc separately for development purposes was stipulated in February, 1970 at the instance of Finance Ministry who desired certain safeguards to be taken as in the case of steel to ensure that the additional funds generated by the increased price were not frittered away. The condition was stipulated on the assumption that with the revision of the price from Rs. 2700/- to Rs. 2850/-, the indigenous producers would be in a position to make profit. This safeguard was mainly intended to be taken against M/s. Cominco Binani Zinc Ltd. in the private sector. In the case of Hindustan Zinc Ltd. Ministry of Finance desired to know the impact of the price increase on the company's operating budgets for 1969-70 and 1970-71. On being addressed, Hindustan Zinc Ltd. informed that its ways and means position was not likely to improve following the price increase. In the circumstances, the company expected that the Government would not insist on creation of a developmental reserve until it was able to make adequate profits. This position was brought to the notice of the Ministry of Finance and they did not desire any specific safeguards in the case of Hindustan Zinc Ltd.

The Ministry was thus aware that Hindustan Zinc Ltd. would not be able to generate funds to keep a sum of Rs. 100/- per tonne of zinc separately. In view of the position explained above, no action could be taken to enforce the condition regarding funding of Rs. 100/- per tonne for development purposes."

8.6. In regard to the price to be fixed from 1st April, 1971, the Company requested the Government (February, 1971) that as the actual cost of production of zinc per tonne during 1969-70 and 1970-71 was Rs. 3,790 and Rs. 3,734 respectively and as the cost of production during 1971-72 at 70 to 75 per cent capacity utilisation of the smelter was estimated at Rs. 3,500 per tonne, as suitable selling price might be fixed.

8.7. The matter was examined by the Bureau of Industrial Costs and Prices and on the basis of their recommendations Government decided in February, 1972 to increase the selling price of zinc to Rs. 4,090 per tonne ex-works, exclusive of excise duty and regulatory excise duty, with effect from 1st February, 1972.

8.8. While increasing the selling price, Government directed that a sum of Rs. 600 per tonne should be earmarked and kept under a separate account for utilisation in the expansion schemes of the Company and should not be accounted for towards profit. The amount required to be kept in the separate account at the appropriate rate ruling from time to time up to March, 1974 works out to Rs. 109.33 lakhs. The manner in which the amount was to be retained and accounted for by the Company was not decided by Government who ultimately withdrew the orders on 19th May, 1975.

8.9. The Committee enquired as to why the instruction of Government were not implemented. They also enquired about the mechanism devised to determine the extra funds accruing to the Company from the introduction of uniform pricing system and to ensure that these funds were utilised for capital expansion. The Management stated as follows:—

> "Instructions of the Government to keep a sum of Rs. 100/- per tonne separately for development purpose upto 31st January, 1972 has to be considered with similar instruction from the Government to keep aside Rs. 600/- per tonne with effect from 1-2-1972. These instruction from the Govt. had obviously presumed that the selling price fixed by the Government would provide the company with a margin of Rs. 100/- 600/- per tonne respectively in excess of reasonable return on investment.
>
> Since in actual operation the selling price of zinc continued to be unremunerative and the company continued to

incur loss, the Government took a final decision to allow the company to charge the same selling price as was charged by MMTC for imported zinc. While issuing the revised order allowing a still higher selling price to the company, the Government did not reiterate the earlier condition of keeping Rs. 100/- 600/- per tonne in a separate account. This has to be treated as implied supersession of the earlier orders of the Government.

A company incurring loss cannot possibly maintain a separate account in the manner desired by the Government. The Company had, therefore requested the Government and the Government had also agreed to prescribe a suitable procedure to enable the company to comply with the Govt. instructions. No procedure had been prescribed by the Government.

Release of funds by the Government for investment by the company also takes into account the internal resources of the company. Thus, this national figure of Rs. 100|- 600|- per tonne was already utilised in the expansion scheme of the company.

The above fact has already been brought out in the Annual Accounts for the years 1971-72, 1972-73 and also 1973-74. (The Government orders regarding the above have been ultimately withdrawn on 19th May, 1975).

The extra price accruing from the revision of selling price of zinc, by introducting the uniform pricing system based on MMTC price of imported zinc, increased the internal resources of the company which were taken into account for the purposes of deciding budgetary support by the Government. Incidentally for the year 1974-75 the expenditure on expansion to the tune of about Rs. 10.60 crores was met from internal resources and no budgetary support was obtained from the Government."

In this connection the Ministry have stated that—

"The internal resources of the HZL are kept in view while deciding the annual budgetary support for the company in the capital budget of the Department of Mines."

8.10. With effect from 1st April, 1973 the Government have, with a view to providing relief to the indigenous producers and at the same time providing uniform prices to the consumers, allowed the Company and the other producer of zinc *viz.* Messrs. Cominco Binani Zinc Limited to sell their production of Zinc at a price not exceeding the Mineral and Metal Trading Corporation's ruling prices (Company's delivered price should match point to point the MMTC's delivered price). Supplies to parties who had opened clean letters of credit in favour of the Company on or prior to 28th February, 1973 for supplies of Zinc in March, 1973 were, however, required to be made at the old price, *viz.* Rs. 4,090 per tonne. While allowing the company to sell zinc at MMTC's prices the Government, however, stipulated that the Company would equitably share the stock charges (provisionally fixed at Rs. 84 per tonne) being incurred by MMTC. The Company's prices *vis-a-vis* MMTC's prices during the year 1971-72 and 1972-73 are indicated below:—

Quarterly period	Company's selling prices (inclusive of excise duty)	MMTC's prices
	Rs.	Rs.
April—June, 1971	3,350	3,150
July—September, 1971	3,350	4,200
Oct.—Dec., 1971	3,350	4,800
January, 1972	3,725	5,260
Feb.—March, 1972	4,965	5,260
April—June, 1972	4,965	5,330
July—Sept., 1972	4,965	5,360
October—Dec., 1972	4,965	5,510
Jan.—March, 1973	4,965	5,675(*) 6,215(**)

(*) Pre-budget.
(**) Post budget.

8.11. It will be seen from the above that up to March, 1973 prices charged by MMTC were higher (except in the quarter ending June, 1971) than the prices allowed to the Company. The zinc price was not under any statutory control but it was under informal price control of the Government. This dual price was maintained on the ground that it will have repercussion on other industries like steel and aluminium where price of indigenous product was generally lower than the imported price and also to discourage inefficiency caused by low level of production in zinc industry. However with effect from 1st April, 1973 the uniform pricing was introduced both for the imported and the indigenous products subject to the payment of buffer stock charges to MMTC.

8.12. **Selling price *vis-a-vis* actual cost of sales.**

The following table indicates the selling price *vis-a-vis* the cost of sales of zinc, lead and by-products during 1968-69 to 1973-74:—

Figures in Rupees

Product	1968-69		1969-70		1970-71	
	Cost of sales	Selling price	Cost of sales	Selling price	Cost of sales	Selling price
1	2	3	4	5	6	7
Zinc (per tonne) .	3,123·08	2,700	4,264·43	2,700 *	4,221·14	2,850
Lead (per tonne) .	2,182·82	3,071·14	3,243·92	3,855·03	3,568·49	4,298·09
Super-phosphate (per tonne) .	(b)	298·17	(b)	268·11	(b)	22·55

NOTES :— *The price was increased to Rs. 2,850 per tonne from 1st February, 1970 and

(*b*) Not available.

NOTES :— The selling prices in respect of lead and superphosphate represent the average selling price.

Selling price of zinc, lead and superphosphate for the year 1974-75

(Figures in Rupees)

1971-72		1972-73		1973-74		1974-75	
Cost of sales	Selling price	Cost of sales	Selling price	Cost of sales	Selling price	Cost of sales	Selling price
8	9	10	11	12	13	14	15
3,918·71	2,850*	3,982·77	4,090	4,823·52	8,814·85	4133·32	12,8[illegible]8
3,031·75	3,500	3,136·34	3,647·14	3,438·11	5,183·42	3588·52	8,75[illegible]
204·16	308·67	198·75	314·41	305·17	383·27	414·93	74[illegible]

then to Rs. 4,090 from 1st February, 1972.

selling price during the year. The selling price of zinc for 1973-74 also represents average

represent weighted average selling prices.

8.13. It will be seen that the selling price of zinc was always less than the cost of sales till 1971-72. The price was increased to Rs. 4,090 per tonnes (excluding excise duty) *w.e.f.* 1st February, 1972. With effect from 1st April, 1973 the company was allowed to sell zinc at MMTC's ruling prices which ranged from Rs. 6,417 to Rs. 13,710 per tonne (inclusive of excise duty) during the year 1973-74.

8.14. The distribution of indigenously produced zinc is controlled by the Ministry of Steel and Mines which makes broad allocations to Director General, Technical Development, D.C. Small Scale Industries, Iron & Steel Controller, Director General, Supplies and Disposal and to Public Sector Undertakings. The Company then sells zinc on the basis of allocations made by different authorities. According to the data furnished by the Management, the despatches made by the Company to Government Departments Public Sector Undertakings etc. and parties in the private sector during the last three years were as follows:—

(in tonnes)

	Government Departments/Public Sector Undertakings	Private parties
1971-72	2,572	5,807
1972-73	5,591	8,122
1973-74	2,108*	930
	+948 (Zinc cathodes equivalent to 901 tonnes of Zinc ingots.	+8,768 (Zinc cathodes equivalent to 8,330 tonnes of Zinc ingots.
1974-75	7,067	4,310

*includes 34 tonnes of imported zinc lying in stock prior to acquisition of MCI.

8.15. The Committee pointed out that during the period upto March, 1973 when the selling price of HZL was generally lower than that at which imported zinc was being sold by MMTC, more quantities of zinc produced by Hindustan Zinc was sold for private parties than to Government Departments/Public Undertakings. In a note submitted to the Committee the Ministry have stated as follows:—

> "Under the informal distribution control, the production of zinc in the two smelters used to be estimated on a half-yearly basis and allocated to the different consuming

sectors. The allocations were decided at inter-Ministerial meetings attended by the representatives of the producers and the consuming Departments. In making the allocation, the requirements of the Government Departments like Defence, P&T and Railways were met first in full and the balance available placed at the disposal of the DGTD, Department of Steel etc., for meeting a portion of the requirements of priority units under their control.

2. It may be stated that the requirements of Government Departments were met in full from indigenously produced Zinc, and they did not obtain any imported metal from MMTC during that period.

3. Since Public Undertakings are registered with DGTD/Department of Steel, their requirements were catered for alongwith other priority units out of the metal left over after meeting the Government Department requirements.

8.16. The Committee enquired as to why imported zinc priced higher was made available to the Public Sector while HZL's zinc which was cheaper was given to the private sector invariably. The Ministry stated as follows:—

> "It may be stated that under the allocation system followed, the requirements of Government Departments were to be met in full from ensured sources of supply *i.e.*, the indigenous smelters and could not be made dependent on imports. The quantity of zinc available over and above the requirements of Government Departments was only utilised for meeting the requirement of priority units. Further the allocation of indigenous zinc to public sector units exclusively would have led to allegations regarding discrimination in supply of raw materials to the industrial units in the public and private sectors."

8.17. The Committee note that after the scarce Industrial Materials Control Order Act 1965, which regulated the distribution and pricing of zinc, was withdrawn in June 1966, the Board of Directors of the undertaking referred the matter of future pricing to Government for advice. In January, 1967 Government advised that in the absence of information regarding the all inclusive cost of production of zinc to the undertaking, the sale price should be such

that the undertaking was not put to loss while at the same time undue advantage was not taken of the very high prices artificially ruling the market. The Committee find that the sale prices of zinc fixed by HZL in consultation with the Government were lower than the cost of production and also lower than the MMTC's prices for imported zinc (except during the quarter April—June 1971) and it appears that these were also lower than the ruling market prices.

8.18. It is stated that the dual price was maintained on the ground that it will have repercussions on other industries like steel and aluminium where price of indigenous product was generally lower than the imported price and also to discourage inefficiency caused by low level of production in zinc industry. The Committee are informed that in actual operation the selling price of zinc continued to be unremunerative and the undertaking continued to incur loss. With effect from 1st April 1973, the Government have, with a view to providing relief to the indigenous producers and at the same time providing uniform prices to the consumers, allowed the undertaking to sell its production of zinc at a price not exceeding the MMTC's ruling prices and consequently uniform pricing was introduced both for imported and indigenous products.

8.19. The Committee note that in regard to lead also, the price of lead produced by HZL at Tundoo was lower than the ruling market price for some time though later the undertaking decided to sell it at the prevailing market price.

8.20. The Committee regret to observe that till March, 1973 the HZL was made to sell zinc produced by it at a price which was not only unremunerative but also lower than market price and also lower than the MMTC's price for imported zinc and thus suffer loss in the process. The Committee would like the Government to review the pricing policy followed till March 1973 and draw lessons for their future guidance.

8.21. The Committee find that during the period upto March 1973, when the selling price of zinc produced by HZL was generally lower than the MMTC's price for imported zinc, more quantities of zinc produced by HZL were sold to private parties than to Government Departments/Public Undertakings. In this connection the Ministry have stated that the allocations of zinc were decided at interministerial meetings attended by representatives of producer and consuming Departments and in making the allocations, the requirements of Government Departments were met first in full from indigenously produced zinc and the balance available was placed at the disposal of the D.G.T.D., Department of Steel etc.,

for meeting a portion of the requirements of priority units under their control, including Public Undertaking. The Committee are not sure as to what extent the demands of public undertakings as compared to those of private units were met from indigenously produced zinc.

8.22. They are informed by the Ministry that allocation of indigenous zinc to public sector units exclusively would have led to the allegations regarding discrimination in supply of raw materials to the industrial units in the public and private sectors. As the Public Undertakings, unlike the private units, have to keep their social obligations in view; while fixing the sale prices of their end products, the Committee feel that in allocating the cheaper zinc to priority units, the demands of Public Undertakings deserved as far as possible, to be given weightage.

(ii) *Pricing Policy—Resfined Lead*

8.23. The Company is the only producer of refined lead in the country. Like zinc metal, the question of fixing the selling price of refined lead was also referred to Government in September, 1966 and Government advised the Company to follow the same guidelines as for zinc metal *i.e.* to fix the price in such a manner that the Company was not put to any loss but at the same time not to take undue advantage of the very high prices artificially ruling in the market.

8.24. In February, 1967 the Company, however, decided to sell the refined lead at the average rates prevailing in Calcutta market during the month of despatch; this was not in accordance with the guidelines given by the Government. Sales are, however, being effected to Director General T.D. units at MMTC's prices with effect from 1973-74.

8.25. During 1974-75 refined lead was sold at MMTC prices for all the buyers.

8.26 The Committee enquired as to why the guidelines given by the Ministry were not followed. The Management have stated as follows:—

> "The Government, *vide* their letter No. 5(63)/66-M, IV dated 20th January, 1967, suggested that the sale price of the metals by HZL should be such that the company is not

put to loss in the transaction, while at the same time not taking undue advantage of the high prices artificially ruling in the market. These suggestions were considered by the Company's Board in their 9th Meeting held on 4th February, 1967.

According to the Eastern Metals Review, the selling price of lead in the market was Rs. 39,000 as against HZL selling price at Rs. 3,250 per MT, as already approved by the Government. Since almost all the sales were being made to DGS&D, Defence and Government organisations, considerable difficulty was experienced in realisation of sale proceeds with the result that the ways and means position of the company had been adversely affected. The schedule of despatches were also badly affected because 100 per cent prior inspection of the material was required to be done by such departments and DGS&D, which usually took a long time. This resulted in large accumulation of the stocks with the company. Further, the sale price of Rs. 3,250 per MT inclusive of Rs. 500.00 as Excise duty reasonably covered the cost of production of this metal, if such cost was worked out on the basis of valuation of the undertaking according to the book figures of MCI Ltd. as on 22nd October, 1965 i.e. the date of take over. Since the valuation of the undertaking remains as undetermined factor, the total investment might have a considerable bearing on its economics and the cost of production. In view of this the Board decided to sell lead metal at the then prevailing market rate as quoted in the "Eastern Metals Review". It was also decided that the practice of making sales to Govt. Departments|Corporations and priority indentors should be continued.

It may be mentioned that prior to the acquisition of the undertaking by the Government, MCI Ltd. was selling lead in the open market at the then prevailing rate. The Ministry was in full knowledge of the decision of the Board. As a matter of fact, in view of the considerations which weighed with the company's Board for taking the above decision, the Ministry felt that there was no adequate justification with the Government to interfere with the decision taken by the Board of Directors regarding the price of lead metal produced by its Smelter at Tundoo. This was made clear in the Ministry of Steel and Mines

D.O. Letter No. 5(23)/67-M.IV dated 3rd June, 1967 and D.O. letter No. 5(23)/67-M. IV dated 15th June, 1967 on a reference made by the Additional Director of Supplies and Disposals and Company's letter dated 6th June, 1967 to the Ministry of Steel & Mines.

8.27. Asked about the procedure followed in regard to fixation of selling price of lead, it has been stated as follows:—

> The procedure being followed in regard to fixation of selling price for lead was the average rate prevailing in Calcutta market during the month preceding the month of despatch. From about middle of 1973 the selling price for lead is linked up with MMTC selling price.

(iii) *Pricing Policy—Cadmium*

8.28. During 1968-69 the Company fixed a price of Rs. 60 per Kg. for orders of small quantity and Rs. 57 per Kg. for bulk supplies. Since apart 1969 Cadmium is being sold at ruling market price.

(iv) *Pricing Policy—Single Super Phosphate*

8.29. This fertiliser is sold by the Company at the best available price within the ceiling price fixed by the Fertilizers Association of India quarterly for each manufacturer.

(v) *Pricing Policy—Sulphuric Acid*

8.30. This is mainly used for producing single superphosphate. However, a small quantity is also sold to chemical industries at market price.

(vi) *Pricing Policy—Silver*

8.31. Prior to January, 1969, silver was being disposed of through M|s. Metal Distributors Limited, Calcutta, on payment of a commission of 1 per cent of the sales price plus brokerage. From January, 1969 it is being exclusively sold to the Hindustan Photo Films Manufacturing Company Limited—another Government Undertaking, on the basis of closing prices ruling in the Calcutta bullion market on the date of actual despatch from the plant at Tundoo. The MCI had entered into an agreement with M|s. Metal Distributors Limited for three years from 1st April, 1964 for the sale of lead and silver. This agreement was, however, terminated by the Compan with effect from 25th March, 1966 and in March, 1967 (while permitting a sale of 1,800 Kgs. through this firm) the Board of Directors asked the Management to make permanent arrangements for the sale of silver in consultation with the Reserve Bank of India and to Government undertakings like Hindustan Photo Films Manufacturing Company Limited.

8.32. The agreement for the sale of the entire production of silver to Hindustan Photo Films Mfg. Company Limited was finalised only in December, 1968. In the meantime, a quantity of 6,871 Kgs. (Approximately) of silver was sold through M|s. Metal Distributors Ltd. during April, 1967 to February, 1969 without obtaining any approval from the Board of Directors for relaxation of the decision taken in March, 1967.

8.33. The Commission paid to M/s. Metal Distributors Limited on the sale of silver was Rs. 30,525.98 at 1 per cent of the value of Rs. 30,52,597.80 of silver sold through them.

8.34. The Committee enquired as to why the Board of Directors decision of March, 1967 was not implemented. The Chairman, HZL stated during evidence as follows:—

> "As soon as Hindustan Zinc was formed right in 1967 itself attempts were made to sell this silver to the mint directly or to Hindustan Photo Films. But both the Photo Films and the mint wanted silver of more fineness, which we were not in a position to produce. While this dialogue was going on, the Hindustan Photo Films agreed to try silver of a lower purity. In the mean while, the stocks were accumulating and at one point of time the Board took a decision that 1,800 Kg. should be sold and it was sold. The ultimate decision from Hindustan Photo Films that they will accept this silver came a few months later. In the meanwhile, some more stocks accumulated and that was also sold.
>
> The management got a decision in principle that till the Hindustan Photo Films take the silver, the accumulation should be sold in the bullion market. So, the need for going to the Board every time was not perhaps considered necessary. I agree that it is a technical violation of the Board's order. But the decision of the Board in principle was that till other arrangements are finalized, we will keep on selling silver in the bullion market."

8.35. While seeking the approval of the Board of Directors in March, 1967 for the sale of 1,800 Kgs. of silver through M|s. Metal Distributors Limited it was stated that as silver rates were regularly quoted in Calcutta Bullion Exchange, there appeared to be no change of any manipulation by the selling agents and the two rates could be easily compared.

8.36. A statement showing the rates at which silver was sold by M|s. Metal Distributors Ltd. upto February, 1969 as compared with rates quoted at the Calcutta Bullion Exchange are given in Appendix I.

8.37. The Committee pointed out that silver was not generally sold at the Bullion rate but many a time at a lower rate. The witness explained the position as follows:—

> "The bullion market rate gives only the opening and closing prices. It is a highly speculative market where the rate changes from day to day and even hour to hour. Some of us have to guess all the time when to buy or sell. If you kindly go through the chart, you will find that some times we have sold at a price higher than quoted in the market, sometimes at the same rate and sometimes at a lower rate. Over all, there was a difference of Rs. 50,000."

8.38. Asked if there could have been some better way of selling this silver, the witness stated as follows:—

> "It has to be sold at the bullion market price. The headquarters was Udaipur, where even today there is no Telex. FA and MD were there. An officer was here to keep in touch with the market and the moment an offer is made, he was to act. Even Hindustan Photo Films who have been buying from us subsequently have always paid at the bullion price. It has also fluctuated continuously."

8.39. The Committee note that prior to January, 1969 silver was being disposed of through Metal Distributors Limited, Calcutta on payment of a commission of 1 per cent of the Sales price plus brokerage. From January, 1969 it was being sold to Hindustan Photo Films Manufacturing Company Ltd., on the basis of closing

prices ruling in Calcutta Bullion Market on the date of actual despatch. After the termination of the agreement with M/S Metal Distributors with effect from March, 1967 the Board directed the Management to make permanent arrangement for sale of silver in consultation with the Reserve Bank of India and to public undertakings like Hindustan Photo Films. An agreement for sale of the extra production of silver to Hindustan Photo Films Mfg. Co. Ltd. was finalised in December, 1968. Although the Board of Directors permitted the Management to sell 1800 kgs. of silver through Metal Distributors Ltd. when the agreement with Metal Distributors was terminated with effect from March, 1967 the Committee regret to find that the HZL sold 6,871 kg. during April, 1967 to February, 1969 without obtaining permission of the Board and paid a sum of Rs. 30,525 as commission. The Committee are informed that it was only a technical violation of Board's decision and in principle the decision was that till other arrangements are finalised HZL will keep on selling silver in Bullion market.

8.40. The Committee are informed that while seeking the approval of the Board of Directors in March 1967 for the sale of 1800 kgs. of silver through M|s. Metal Distributors Ltd. it was stated that as silver rates were regularly quoted in Calcutta bullion exchange, there appeared to be no chance of any manipulation by the selling agents and the two rates could be easily compared.

8.41. The Committee are however suprprised to find that out of 30 deals put through M|s. Metal Distributors Ltd. between April 1967 and February 1969 as many as 22 deals were made at the rates which were lower than the bullion market rates on the relevant date and the overall difference between bullion rates and the actual rates at which the silver was sold was Rs. 50,000.

8.42. The Committee are informed by the Chairman, HZL during evidence that "the bullion market gives only the opening and closing prices. It is a highly speculative market where the rates changes from day to day and even hour to hour......If you kindly go through the chart. You will find that sometimes we have sold at a price higher than quoted in the market, Sometimes at the same rate and sometimes at a lower rate."

8.43. The Committee are not convinced of the reasons furnished by the Chairman, HZL in this regard.

8.44. They would like the Ministry to enquire into the deals put through the private selling agents (M/s. Metal Distributors Ltd.) and determine whether, and if so, to what extent the loss of Rs. 50,000 suffered by the undertaking could have been avoided and inform the Committee about the outcome of the enquiry.

B. Sales Performance

(i) *Distribution system*

8.45. The distribution of indigenously produced zinc is controlled by the Ministry of Steel and Mines which makes broad allocations bi-annually to Director General, Technical Development (for large industires), D.C. Small Scale Industries (for small scale industries), Iron and Steel Controller (for steel plants) Director General, Supplies & Disposals (for Railways, P&T, Ordnance Factories, etc.) and to public sector undertakings. Zinc is then sold by the Company against allocations made by these authorities.

8.46. Similarly, refined lead is suppiled to Government Departments, Government Undertakings and other parties and Director General, Technical Development.

8.47. The procedure followed for the sale of by-products is as follows:—

Cadmium

Allocations are made either by the Director General, Technical Development or State Directors of Industires.

Informal distribution control on cadmium was withdrawn in March, 1974 and the Company is now free to sell metal to actual users and Government Departments.

Super phosphate

The Company sells this product through distributors in Rajasthan, West Bengal, Maharashtra, Madhya Pradesh and Gujarat. The Company had appointed Fertiliser Corporation of India Limited as their sole selling agents for certain States and Union Territories in August, 1968 but this arrangement was discontinued from May, 1971.

Since July, 1972 the distribution of superphosphate is controlled by the Ministry of Agriculture through Fertilizer Control order issued under the Essential Commodities Act.

Sulphuric Acid

8.48. Hindustan Zinc Ltd. has entered into contracts for the sale of this product with M/s. Udaipur Chemicals Industries, Debari (Udaipur) M|s. Prabhat Chemicals, Udaipur and M|s. Bhanu Prasad N. Joshi, Ahmedabad.

8.49. The contract with M|s. Udaipur Chemical Industries was entered into, after inviting offers from interested parties normally engaged in the manufacture of chemicals for establishment of ancillary industires, in April, 1969 for a period of 15 years providing for sale of 300 tonnes of sulphuric acid per month. The price is to be fixed quarterly on the basis of the cost of imported sulphur. The contracts with the other two parties were entered into for a period of 6 months from 1st March, 1971 for sale of 250 tonnes per month to each of them at a price to be fixed with reference to market conditions subject to review every quarter.

8.50. The Committee enquired about the justification for entering into a long term contract with M|s. Udaipur Chemical Industries. The Management stated as follows:—

> "The need for setting up an ancillary unit as a steady consumer of 300 tonnes of Sulphuric Acid was felt as an outlet for the marginal quantity of by-product Sulphuric Acid produced in the Roaster, which was surplus to the Smelter's internal requirement. In the absence of such a contract, surplus Sulphuric Acid for which adequate demand in the Udaipur area did not exist, had to be sold in a buyers' market to more distant consuming areas such as Gujarat. Non-disposal of surplus Sulphuric Acid which could not be stored beyond the storage capacity privided for this purpose would have resulted in suspension of Roaster operation which was part of the Zinc Production circuit."

Sulphuric Acid Sale prices as applicable to Udaipur Chemical Industry *vs.* cost of production is indicated below. Also indicated are the prices applicable to other parties.

Period	Price applicable to U.C.I.	Price applicable to other Parties	Conversion cost of sulpha-Dioxide gases into sulphur acid.
	Rs.		
April, 71	139·70		71-72 55·24
May—September 71	142·45		
Oct.—March, 72	144·00		
April—Sept. 72	146·00		72-73 67·00
Oct. 72- March, 73	163·53		
April—September 73	165·00		73-74 139·00
Oct.—Dec. 73	172·88		
Jan.—March 74	191·26		
April—June 74	273·10		74-75 155·00
July—Sept. 74	425·00		
Oct.—June 75	500·00		
July—Oct. 75	400·00		
April—29 24-6-69		240·00	
25-9-69—17-12-69		300·00	
18-12-69 5-3-70		250·00	
6-3-70—Nov. 73		197·00 (average)	

8.51. Asked as to why the sale price of sulphuric acid to M|s. Udaipur Chemical Industries was less than the selling priec for other small scale industries. The Management have stated as follows:—

> "The contract with UCI and the price formula included in the contract was the result of open tenders. The prices realised from other buyers were higher since their off-take was much lower and uncertain."

8.52 The Committee find that Hindustan Zinc Ltd. entered into contracts for the sale of Sulphuric Acid with M/s. Udaipur Chemical Industries in April, 1969 for a period of 15 years providing for the sale of 300 tonnes of sulphuric acid per month. The Committee also note that whereas in the case of M/s. Udaipur Chemical Industries the price was required to be fixed quarterly on the basis of the cost of imported sulphur, in the case of other parties the price was fixed with reference to market conditions subject to review every quarter. It has been stated that the prices realised from other buyers were higher since their off-take was much lower and uncertain. The Committee fail to understand as to why an agreement should have been entered into for such a long period and that too stipulating price on the basis of the cost of imported sulphur. They would like Government to examine this aspect so as to evolve suitable guidelines for the future.

(ii) Company's share in the total requirement of the country

8.53 As already mentioned, Zinc metal is produced in the country by Hindustan Zinc Ltd., and a company in the private sector. M/s. Cominco Binani Zinc Limited, Alwaye. The existing Zinc Smelter owned by the Company has a production capacity of 18,000 tonnes per annum while that set up by the private sector company can produce 20,000 tonnes per annum. So far as refined lead is concerned, the Company is the only producer of this metal in the country. The capacity of the Lead Smelter at Tundoo has been assessed by the Company at 3,600 tonnes per annum up to 1973-74 and 4,2000 tonnes per annum as on 31st March, 1975.

8.54 The following table indicates the total quantity of zinc metal and refined lead available for consumption in the country during 1968-69 to 1974-75:

(In tonnes)

Year	ZINC			
	Quantity produced by indigenous producers		Quantity imported	Total quantity available
	Company	Cominco Binani Zinc Ltd.		
1968-69	13,402	14,622	89,856	1,17,880
1969-70	9,926	13,800	36,554	60,280
1970-71	9,490	12,160	91,000	1,12,650
1971-72	12,125	12,482	70,500	95,107
1972-73	9,565	13,272	76,802	99,639
1973-74	12,512*	9,954	62,672	85,138
1974-75	14,755**	8,026	66,644	89,425

*includes 10,911 tonnes of cathodes equivalent to 10-365 tonnes of ingot.

**includes 854 tonnes of cathodes equivalent to 803 tonnes of ingot.

Year	Quantity Produced by the Company	Quantity Imported	Total quantity avaliable
1968-69	1,853	32,800	34,653
1969-70	1,892	29,215	31,107
1970-71	1,719	40,000	41,719
1971-72	1,768	35,000	36,768
1972-73	2,892	41,381	44,273
1973-74	2,700	35,067	37,767
1974-75	4,109	37,109	41,218

8.55 It will be seen that out of total supplies of zinc and lead in the country indigenous production of zinc and lead contributed to the extent of about 19 per cent to 39 per cent and 4 per cent to 6 per cent respectively.

(iii) Sales vis-a-vis Product Availability

8.56. The product availability to the Company and the sales effected by it during the years 1968-69 to 1974-75 years is given below:—

(Quantity in tonnes)

	Zinc ingots	Cadmium (in Kgs.)	Super-Phosphate	Lead	Silver (in Kgs.)
	1	2	3	4	5
1968-69					
Opening Balance	..	0,978	20,844	890	202
Production	13,4028	51,936	48,993	1,853	2,781
Sales	12,749	34,733	54,139	2,462	2,536

	1	2	3	4	5
Closing Balance . . .	653	18,181	15,698	257@	447
1969-70					
Opening Balance . . .	653	18,181	15,698	257	447
Production	9,925	32,328	42,650	1,892	2,137**
Sales	10,457	47,027	47,434	1,952	2,532
Closing Balance . . .	121	3,482	10,914	197	52
1970-71					
Opening Balance . . .	121	3,482	10,914	197	52
Production	9,490	22,620	51,054	1,719	2,302
Sales	7,775	19,568	54,026	1,381	1,853
Closing Balance . . .	1,850**	6,534	5,937£	535	501
1971-72					
Opening Balance . . .	1,850	6.5	5,937	598@@	502
Production	12,125	14.9	46,778	1,768	2,907
Sales	8,379	14.7	40,124	1,907	3,294
Closing Balance . . .	5,596	6.7	12,581££	459	115
1972-73					
Opening Balance . . .	5,596	6.7	12,581	459	115
Production	9,565	19.6	43,257	2,892	4,692***
Sales	13,713	4.0	47,075	2,796	3,975
Closing Balance . . .	1,448	22.3	10,800£££	565@@@	832
1973-74					
Opening Balance . . .	1,448	22.3	10,800	565	832
Production	2,147(aa)	26.7	27,300	2,700	3,791
Sales	3,038(d)	25.2	33,358	1,983	3,833
Closing Balance . . .	557(b)	23.8	2,692(a)	1,282	790

	1	2	3	4	5
1974-75					
Opening Balance . . .	557	28.8	2,692	1,282	790
Production . . .	13,952	46.1	50,670	4,109	6,558(e)
Sales	9,327(f)	22.9	42,474	3,848	1,554
Closing Balance . . .	5,182	470	10,888	1,543	4,291

NOTES:—$Includes 4,807 tonnes of cathodes produced in 1967-68 but melted during the year and equivalent to 4,327 tonnes of zinc ingots.

$$ Includes 14 tonnes found in excess on stock verification.

£ The closing balance has been arrived at after adjusting the shortage of 2,005 tonnes.

££ Arrived at after adjusting 10 tonnes as a result of reconciliation with despatch figures.

£££ Includes 2,037 tonnes representing excess found on stock verification.

@ The closing balance works out to 281 tonnes. The difference of 24 tonnes is under reconciliation.

@@ Includes the stock of 63 tonnes at Hindustan Cables Limited.

@@@ Includes 9 tonnes on account of sales returns.

** Excludes 1,113 Kgs. of silver used in production of high grade lead.

*** Excludes 368 Kgs. of silver used in the production of high silver lead for zinc smelter.

(a) Difference of 2,050 tonnes under reconciliation.

(aa) Does not include production of 10,912 tonnes of cathodes equivalent of 10,365 tonnes of zinc ingots.

(*b*) Does not include closing stock of zinc cathodes.

(*d*) Does not include sale of 9,716 tonnes of cathodes.

(*e*) Includes 1,503 Kgs. internal consumption.

(f) Does not include sale of 2,050 tonnes of zinc cathodes.

Sale Performance of Zinc

8.57. It will be seen that although zinc is a scarce metal, the Company was not in a position to sell its entire production which itself was much less than the rated capacity of the smelter. As a result, the closing stock gradually increased from 653 tonnes in 1968-69 to 5,596 tonnes in 1971-72 involving the blocking of funds to the extent of Rs. 228.88 lakhs (as on 31st March, 1972 at the selling price of Rs. 4,090 per tonne). The closing balance, however, came down to 1,448 tonnes at the end of 1972-73 and to 557 tonnes at the end of 1973-74.

8.58 The Management stated (January, 1975) as follows:—

> "The present allocation system results in a time-lag of 2-3 months in the movement of zinc stocks from Hindustan Zinc Limited, inasmuch as 'allocation letters' which follow distribution Meeting decisions are received frequently upto 6 to 8 weeks after the commencement of the 'allocation period', and a further 3-4 weeks (minimum) period is taken up by the allottees in making payment arrangements. This situation becomes worse when MMTC prices are anticipated to fall (as assessed in relation to international prices) I and allottees withhold acceptances of sales offer, sometimes not responding at all. As a consequence huge finished goods inventary builds up."

8.59. The Committee enquired as to why an allottee could not be forced to take the delivery of the quantity allotted to him at prices applicable at the time of allotment. The Management stated as follows:— ......

> "It is not within HZL's competence or authority, except where the allottee has made payment arrangements. The only way open which was suggested by HZL, that the allocating Government Agency should reduce future allocations to that party to the extent of the unuplifted previous allocation would have been a step in this direction."

8.60. In this connection, the Ministry have stated as follows:—

> "The factors affecting the offtake of metal by the consuming industries are various, complex and at times contradictory: some of the important ones being the trend in prices—national and international—of the metal, the general industrial activities in the consuming industries, credit and export policies, fiscal policies, etc. During the last two years or so, there has been substantial fluctuations in prices, and also the consumption of metal in the country often unrelated to the price. Part of the metal requirements are met by importation through MMTC and part by indigenous production out of the local ores or from imported concentrates. Any solution with regard to the pricing, distribution, etc. safeguarding the producers', importers' (MMTC) and the consumers' interest would be equally complex.

Continuous review of the system of pricing, distribution, etc. taking various conflicting interests into consideration is carried out and changes implemented keeping in view the set of circumstances prevailing at any point of time. In this context significant changes introduced during the last three years may be mentioned. These are: (1) introduction w.e.f. 1-4-1973 of a uniform price for imported metal, metal produced from indigenous ores and metal produced from imported concentrates; (2) increase in the excise duties (on indigenously produced metal) from Rs. 875/- to Rs. 2625/- per tonne w.e.f. 1-8-1974; (3) relaxation of informal distribution control w.e.f. February, 1975, in respect of indigenous metal, thus, enabling the Government Departments, public sector undertakings and priority DGTD units to obtain the metal from producers without formal allocation; and (4) introduction of automatic licensing system by Ministry of Commerce for imported raw materials including zinc metal w.e.f. 1-4-1975.

8.61. The Ministry have further stated that the suggestion made by HZL would have merits in the sellers' market and buoyant economic situation, and would be kept in view while carrying out the reviews.

8.62. Asked about the reasons for the poor off-take of stocks during 1973-74, the Management have stated as follows:—

1974-75—There was carried forward inventory of 5181 M.T. of zinc Ingots on 1-4-1975 which represented unsold stocks. The reasons for poor offtake of stocks (which was not confined to HZL but applicable to MMTC as well) were:—

(i) Credit squeeze and consequent effect in inventory holding capacity of allottees,

(ii) anticipation by allottees of downward trend in prices; and

(iii) a general slump in economic activity. The liberalised distribution policy of the Government became effective from February, 1975, Until then all sales were strictly to "allottees" who had received allocation from DGTD, DC-SSI, DGS&D & Ministry. After liberalisation of distribution and the change in the MMTC's price-announcement policy from the earlier three monthly to half-yearly intervals, the Company has been able to

> sell the entire stock and current production by the middle of 1975-76."

8.63. The Committee regret to note that Hindustan Zinc Ltd. was not in a position to sell its entire production of zinc which itself was much less than the rated capacity of the smelter with result, the closing stock gradually increased from 653 tonnes in 1968-69 to 5,596 tonnes in 1971-72 involving blocking of funds to the extent of Rs. 228.88 lakhs. The closing balance came down to 1448 tonnes at the end of 1972-73 and to 557 tonnes at the end of 1973-74. The Committee are informed that when MMTC prices were anticipated to fall, allottees withheld acceptance of sales offer, sometimes not responding at all. As a consequence huge finished goods inventory was built up.

8.64. The Committee also note that although HZL suggested to the Ministry that future allocations to such parties should be reduced to the extent of the unuplifted previous allocation the Ministry have stated that the suggestion "would have merits in the seller's market and buoyant economic situation, and would be kept in view while carrying out the reviews". The Committee find that the closing balance of unsold stock at the end of 1974-75 again rose to 5181 m. tonnes and the rise in the unsold stock is stated to be due to credit squeeze, anticipation by allottees of fall in prices and a general slump in economic activity. They are informed as a result of liberalisation of distribution policy in February, 1975 the undertaking has been able to sell the entire stock and current production by the middle of 1975-76. The Committee need hardly point out that the distribution policy should be kept under constant review and adapted from time to time to suit the market conditions so as to ensure that there is no undue accumulation of unsold stocks of zinc with the undertaking and no blocking up of the capital.

Sale Performance of Cadmium

8.65 The closing stock of Cadmium during the years 1972-73, 1973-74 and 1974-75 rose to 22.3 tonnes, 23.8 tonnes and 47 tonnes respectively as against 6.7 tonnes during 1971-72.

8.66. In regard to the rise in closing inventory of Cadmium the Management stated as follows:—

> "The higher Cadmium closing stocks on 31-3-1973 and 31-3-1974 were on account of lack of demand of this metal, which was covered by a distribution control of the Government and despite allocations in the form of "Essentiality Certificates" issued by nominated Government Agencies, such as DGTD, DC-SSI, Government, Departments etc. the allottees were not prepared to uplift supplies. One of main reasons which was responsible for the lack of demand was heavy importation of this metal and its alloys in 1971-72 and 1972-73 as a result of which large stocks continued to float in the market thereby depressing demand for indigenous product. The import figures (quoted from Eastern Metal Review of 14th January, 1974—page 1079) for Cadmium and alloys are reproduced below:—

Year	Quantity (M.T.)
1968-69	34.85
1969-70	0.85
1970-71	2.55
1971-72	222.03
1972-73	166.70

> In August, 1974, taking advantage of rising international prices HZL exported 10 tonnes of this metal to U.K. earning foreign exchange of approx. Rs. 6.90 lakhs. Since then the international prices have shown a marked downward trend and as such export has not been resorted to. Besides a ban on further importation which has been agreed to by GDTD, HZL has also gone into production of 99.99 per cent purity metal (normal commercial grade is 99.95 per cent) which would also satisfy the hitherto imported higher purity metal's demand of Electronics Industry. Due to the continued lack of demand for this metal HZL has approached the Government for an export subsidy as the international prices are lower than even the cost of production of this metal.

8.67. The Committee enquired about the justification for the import of Cadmium during 1971-72 and 1972-73. The Ministry stated as follows:—

> "With the availability of cadmium from indigenous production, w.e.f. 1970-71 the import of cadmium of 99.95 per cent purity was placed in the restricted category in January 1969. However, actual imports took place during 1972 and also in 1973 against import licences issued earlier. Some quantities of higher purity metal were also imported as the same was not produced in the country then. HZL have recently established the production of high purity metal and restrictions have now been imposed for the import of higher purity metal also.
>
> The import of cadmium during 1974 and 1975 has been marginal only, but the offtake from the indigenous producers continues to be sluggish on account of sharp decline in the demand of this metal."

8.68. The Committee find that the unsold stock of cadmium was 22.3 tonnes, 23.8 tonnes and 47 tonnes at the end of 1972-73, 1973-74 and 1974-75 respectively as against 6.7 tonnes at the end of 1971-72. They are informed that one of the main reasons responsible for the lack of demand was heavy importation of the metal and its alloys in 1971-72 and 1972-73 as a result of which large stocks continued to float in the market thereby depressing demand for indigenous products. The Ministry have stated that the actual imports took place during 1972 and 1973 against import licences issued earlier and some quantities of higher purity metal were also imported as the same was not produced in the country then. The Committee cannot but deprecate the lack of proper coordination between the Import Authority and the administrative Ministry concerned with the Hindustan Zinc Ltd. and expect that imports would not be allowed in future at the expense of the indigenous production.

8.69. The Committee are informed that in order to export the excess stocks due to the continued lack of demand for this metal within the country, Hindustan Zinc Ltd., has approached the Ministry for an export subsidy as the international prices were lower than even the cost of production of this metal. The Committee would like to be informed of the strategy evolved to dispose of the accumulated stock and current production of cadmium at economic prices.

8.70. They would, however, like the undertaking to bear in mind that ultimate solution to the problem is cutting the cost of production so as to be able to sell cadmium in international markets at competitive prices without any subsidy. They would therefore stress that the undertaking should searchingly go into the various aspects and stages of production, locate areas where economies are possible and take positive measures to effect economies.

Sale performance of Super Phosphate

8.71. The closing stocks of super phosphate during 1972-73, 1973-74 and 1974-75 was 12,581 tonnes, 10,800 tonnes and 10,888 tonnes respectively.

8.72. Explaining the difficulties faced by the Corporation indisposing of this product, the Management in a written reply stated as follows:—

> "The rise in closing inventory on 31-3-1972 was due to non-movement of Superphosphate despite sufficient demand, and orders in hand. The stocks could not be moved due to an acute shortage of railway wagons spread over several months, as a result of which orders to the extent of about 15,000 M.T. had to be cancelled.
>
> While the availability of wagons showed improvement after the second half of 1972-73, Fertilizer demand had a serious set back in the States fed by HZL viz. Rajasthan, Gujarat, M.P. and Maharashtra which were seriously affected by drought and where cooperative organisations normally the largest buyers of Superphosphate, cancelled orders already placed a HZL. While the year ended with higher sales than 1971-72 due to procurement of orders from Punjab which was not affected by drought there was still a large closing inventory on 31-3-1973.
>
> The increasing emphasis by consumers on pre-mixed|complex fertilisers in which the prescribed dosages of N.P. and K are available, is steadily eroding the growth of demand for this straight phosphatic (i.e. P only) fertiliser."

7.73. The Committee find that there has been unduly large accumulation of stocks of super phosphate—a fertilizer produced by HZL as a by-product. The rise in inventory upto March, 1972, was stated to be due to non-movement of stocks on account of acute shortage of railway wagons as a result of which orders to the extent

of 15,000 tonnes had to be cancelled. When the availability of wagons showed improvement. The fertilizer demand had a serious set back due to drought in the states fed by HZL. The Committee are informed that now the increasing emphasis by consumers on pre-mixed/complex fertilisers, in which the prescribed dosages of N, P & K are available is steadily eroding the growth of demand of this straight phosphate (i.e. P only) fertilizer.

8.74. The Committee suggest that the Ministry/undertaking should in consultation with the Ministries of Chemical and Agriculture and the public sector undertakings engaged in the production of fertilizers, critically review the quantity and quality of the fertiliser (super phosphate) being produced by HZL vis-a-vis **the demand for fertilizers in the regions/states served by the undertaking, and evolve a suitable production pattern, if necessary by introducing diversification or a new product mix so as to ensure that whatever is produced by the undertaking finds ready market in the country.**

Sale performance of Silver

8.75. The closing balance in regard to silver during 1972-73, 1973-74 and 1974-75 was 832 kgs., 790 kgs., 4291 kgs. respectively as against 115 kgs. during 1971-72. In this connection, the Management have stated as follows:—

> "Non-upliftment of silver stocks by the only customer with whom HZL Silver sales were tied up, *viz.* Hindusan Photo Films Ltd. (A Public Sector Co.) was the reason for the high closing inventory on 31-3-1973 and 31-3-1974. In 1974-75 the Company exported approx. 1550 kgs. of Silver to Europe and U.K. at prices higher than Indian market rates earning foreign exchange of over Rs. 20 lakhs. The stepped up 1975-76 production of Silver, except for a supply of 800 kgs. to Hindustan Photo Films and an export of 2,000 kgs. to U.K. (earning a foreign exchange of about Rs. 24 lakhs) is being reserved for internal consumption for HZL's Debari Smelter expansion and Vizag Smelter Project.
>
> There is no marketing problem in regard to this product.

C. Sale of Zinc Cathodes

8.76. In the course of half-year April—September, 1973 allocation letters for a quantity of about 18000 tonnes of zinc were issued by the DC. SSI|State Directors of Industries whereas the total capacity of the zinc smelter was 18,000 tonnes per annum and the actual production was much less than the rated capacity.

8.77. The Committee enquired about the basis of issuing these allocation letters. The Ministry have stated as follows:—

> "Distribution of indigenously produced zinc used to be under informed distribution control according to which broad allocations were made by the Department of Mines on a half yearly basis. In making the broad allocations, the requirements of priority consuming Government Departments like Defence, Railways, Post and Telegraph etc. were not in full and the balance placed at the disposal of DGTD, Department of Steel, D.C.S.S.I. etc., for meeting a portion of the requirements of priority units on their books. Due to the break-down of the melting furnace of Hindustan Zinc Ltd. in February, 1973, the company could produce zinc only in the form of cathodes without casting the same into ingot which is the normal saleable product. In view of this, the DGTD, Department of Steel, D.C.S.S.I. Defence Production, etc. were requested in March, 1973 to explore the possibility of meeting the requirements of units under their control in the form of zinc cathodes available with the Hindustan Zinc Ltd. While some organisations regretted their inability to use zinc cathodes, there was no immediate response from others. In the course of the half-year April—September, 1973, however, the DC, SSI|State Directors of Industries issued a large number of allocation orders for supply of zinc cathodes by Hindustan Zinc Ltd. to small scale units. The DGTD also made some allocations. The total allocation orders issued during the half-year were about 18,000 tonnes and mostly from DC, SSI|State Directors of Industries. It appears that the State Directors of Industries on being informed by the DC, SSI, that zinc cathodes were available with the Hindustan Zinc Ltd., recommended release of cathodes to the small scale units looked after by them without obtaining any formal allocation from the DC, SSI or the

Department of Mines. Their anxiety to provide zinc cathodes to the units resulted in issue of allocation orders to the extent of about 11,000 tonnes.

8.78. Asked about the quantity actually supplied by HZL against the above allocations, it has been stated that:

> "So far as the SSI Sector is concerned the effective allocation from DC, SSI was for 10,176 tonnes. Against this quantity, financial arrangements made upto 30-9-1973 were for about 700 tonnes only, the actual deliveries to SSI units being 513 tonnes. Barring the quantity for which financial arrangements had been made by the SSI units as on 30-9-1973, the remaining allocations were subsequently cancelled by the DC, SSI.

8.79. The Committee enquired about the procedure laid down for the supply of zinc by HZL against these allocations. The Ministry have stated as follows:—

> "According to the normal procedure followed by Hindustan Zinc Ltd., based on the unit-wise allocations made by the DGTD, DC, SSI, etc., offers for sale of zinc are sent by the company. Once the offers are accepted by the allottees and financial arrangements made, supplies are effected. Though supplies are normally made by rail, ex-factory delivery is given whenever an allottee desired and made cash payment. Hindustan Zinc Ltd. has confirmed that the same procedure was adopted in respect of the allocations made during April—September, 1973. However, a large number of allottees presented themselves at Udaipur in September, 1973 to take delivery of zinc cathodes on cash payment."

8.80. During evidence the Chairman, HZL stated as follows:—

> "This relates to a particular period when our melting furnace was down and we were producing cathodes. Cathode users are very few in the country; cathodes are thin sheets. Unless melted into ingots large users like big galvanisers who have a mechanised system cannot use it. We had offered them to the small scale industries. Allocations were not made by the SSI directorate for a long time till the month of September, when they rushed orders for 16,000 or 18,000 tonnes within a few days. We could not meet that; we supplied only 400 tonnes and stopped it.

8.81. The Witness further stated as under:—

> "When we started getting allocations, we did not know that a flood of allocations was going to follow. So, we went ahead with issue of delivery orders against allocations which came from the Government Departments. Since people were a little more alert than others. They brought their trucks and rushed and picked up their quotas. By the time the flood started in a big way, we stopped the supply. The first few comers got it."

8.82. The Committee are surprised to note that in the course of half-year April-September, 1973 allocation letters for a quantity of 18,000 tonnes of zinc cathodes were issued by DCSSI|State Directors of Industries against which only 513 tonnes could be actually delivered by HZL. The Committee are led to the conclusion that there was no coordination between the zinc allocation organisations and the producers of zinc viz Hindustan Zinc Ltd. They hope that adequate measures would be taken to avoid such situations in future which only cause a lot of inconvenience to the consumers.

D. Loss in the sale of lead

8.83. Lead is normally sold at the average rate prevailing in the Calcutta market during the month preceding the month of despatch from the plant at Tundoo. But in April, 1968 the Company entered into an agreement with the Director General, Supplies and Disposals for the supply of 2,485 tonnes of pig lead to the Defence Department at the rate of Rs. 3,000 per tonne (inclusive of excise duty of Rs. 500 per tonne). The agreement did not contain the price variation clause. The supply was to be completed by the end of October, 1968—1,000 tonnes in the first 3 months and the balance quantity during 1st May, 1968 to 30th October, 1968.

8.84. The contracted quantity was subsequently increased to 3,715 tonnes in July, 1968 and 4,988 tonnes in October, 1968 and the delivery period extended to May, 1969 and April, 1970 respectively (further extended up to October, 1972). The originally stipulated quantity of 2,485 tonnes was supplied by September, 1970 on which the Company incurred a loss of Rs. 12.14 lakhs with reference to ruling Calcutta market prices. A further quantity of 2,503 tonnes was supplied by the Company upto October, 1972, against the increase in the stipulated quantity subsequently agreed to.

8.85. The Management stated in November, 1971 that at the time of entering into original agreement in April, 1968 the ruling price ranged between Rs. 2,750 and Rs. 2,850 per tonne (inclusive of excise duty) on account of recession in the market and the finalisation of selling price of Rs. 3,000 per tonne FOR Tundoo gave a margin of about Rs. 300 to Rs. 350 per tonne over the ruling market price. When the Director General, Supplies and Disposals asked for further supplies of lead for defence purposes, the Company initially expressed its inability, but subsequently agreed to do so on account of urgent defence requirements for which no foreign exchange was available with Government. Even at this stage the ruling price in Calcutta market was lower than Rs. 3,000 per tonne. Normally the Director General, Supplies and Disposals does not agree to price variation clauses in their contracts.

8.86. The Committee enquired if HZL was under any obligation to agree to DGS & D terms and why the insertion of price variation clause in the agreement was not insisted upon. The Management stated as follows:—

> "In the beginning of 1968 the Lead Smelter had a stock of about 1000 MT of Lead which could not be cleared due to recession in the market. The ruling price during March-April, 1968 ranged between Rs. 2,750 and Rs. 2,850 per MT inclusive of excise duty. As against these market prices, our price of Rs. 3,000.00 per MT as offered to DGS & D was on FOR Tundoo. On this basis there was a gain of about Rs. 300.00 to Rs. 350.00 per MT *vis-a-vis* the ruling market prices at Calcutta as reffected in the EMR. Since the prices were showing a down ward trend for quite a few months, it was not expected that during the short period of the currency of the agreement with the DGS & D, the prices would recover. Apart from the fact that DGS & D do not normally agree for such variation clauses (though there was no such obligation agreed to), insertion of any variation clause in the agreement could have cut across both ways. In view of the market trend of lead prices in those days it was considered safer not to include any variation clauses.
>
> In fact, during the subsequent period that the DGS & D requested us for further supply of lead for Defence work, we had regretted our inability to supply an additional quantity. In view of the urgent defence requirements, however, DGS & D again requested us to reconsider. Since the additional quantity was required for the defence purposes and on consideration of saving the foreign exchange, it was agreed to supply the additional quantity of lead.

> At this stage namely during August, 1968 the EMR selling prices were lower than the rate at which we agreed to supply the additional quantity of lead for the defence requirements."

In this connection the Ministry have stated that:—

> "It appears that the company accepted the DGS & D terms in the 1968 agreement, though it could have insisted upon a price variation clause, in fact, this was done later, for the additional quantities of lead added on their own by DGS & D."

8.87. Asked as to how the recoveries of cost were regulated in the absense of an escalation clause, the Ministry have stated "recovery of increased cost would be different in the absence of escalation clause."

8.88. In September, 1971 Government asked the Bureau of Industrial Costs and Prices to examine the Company's cost of production of pig lead and suggest a reasonable price to be applied to the supplies made over and above the initially contracted quantity of 2,485 tonnes. The Bureau advised the Government that as the matter was primarily of interest to the ordnance factories and the Company, the question of a fair price for the supplies made might be decided through inter-ministerial discussion based on general principle s. Accordingly, the Company was asked by Government in March, 1972 to furnish detailed cost data in respect of production of pig lead on receipt of which a meeting among the representatives of the Department of Mines, the Ministry of Defence, the Director General Supplies and Disposals and the Company was proposed to be convenced. The price in respect of supplies of pig lead made during the year 1970-71 and 1971-72, over and above the initially contracted quantity of 2,485 tonnes was finally agreed upon in June, 1974, as Rs. 4,016.37 and Rs. 3,710.46 per tonne (exclusive of excise duty) respectively. Although in regard to the despatches made during 1972-73, final price is yet to be fixed (January, 1975) payment at a provisional price of Rs. 3,500 per tonne up to September, 1972 and at Rs. 4,000 per tonne thereafter has been made by the DGS&D.

8.89. The Committee enquired if the final price to be paid to DGS&D had since been settled and what was the ultimate profit or loss made on the of the entire quantity as compared with the ruling

Calcutta market prices from time to time. The Management have stated as follows:—

> "The final price for Lead despatched during 1972-73 has been settled and the value of lead as per settled price works out to Rs. 1.06,81,546.28 and as per the then prevailing quarterly average EMR Calcutta price works out to Rs. 1,25,07,546.10; difference of the two works out to Rs. 18,25,999.82. The total difference between average ruling prices of Calcutta market and the DGS & D price fixed for the despatches made from 1968-69 to 1972-73 is Rs. 43.89 lakhs."

8.90. The Committee note that in April, 1968, the undertaking entered into an agreement with the Director General of Supplies and Disposals for the supply of 2485 tonnes of pig lead to the Defence Department at the rate of Rs. 3,000 per tonne (inclusive of excise duty of Rs. 500 per tonne). The agreement did not contain the price variation clause. The contracted quantity was subsequently increased to 3715 tonnes in July 1968 and 4988 tonnes in October, 1968. The originally stipulated quantity of 2485 tonnes was supplied by September, 1970, on which the undertaking is stated to have incurred a loss of Rs. 12.14 lakhs with reference to ruling Calcutta market prices. The Committee are informed that at the time of entering into original agreement in April 1968, the ruling price ranged between Rs. 2750 and Rs. 2850 per tonne on account of recession in the market and the finalisation of selling price of Rs. 3,000 per tonne by the undertaking with the D.G.S & D. gave it a margin of about Rs. 300 to Rs. 350 per tonne over the ruling market price, and the prices were showing a downward trend.

8.91. It was not expected that the prices would recover during the currency of agreement. They are also informed that normally Director General, Supplies and Disposals, does not agree to price variation clause in their contracts though, according to the Ministry, the undertaking could have insisted upon the price variation clause and this, in fact, was done later for additional quantity of lead. The undertaking has stated that insertion of price variation clause could have cut across both ways and in view of the market trend, it was considered safer not to include such a clause. In 1971 when it was suggested that reasonable prices of supplies of lead over and above the originally contracted quantity should be got determined though Bureau of Industrial Costs and Prices, the Bureau advised that as the matter was primarily of interest to ordnance factories, a fair

price might be fixed through inter-ministerial discussions and the prices were so fixed in 1974, and supplies made accordingly. The Committee note that the total difference between the ruling prices of Calcutta market and the D.G.S.&D prices fixed for despatches of lead made from 1968-69 to 1972-73 against the contracts is Rs. 43.89 lakhs. The Committee would like the Ministry|undertaking to go into the general question of quoting prices to Government and non-Government organisations in the light of the past experience and evolve guidelines which should be followed by them in this regard. They feel that the question of including price variation clause in the agreement should be carefully considered with reference to market conditions prevailing at the time and decision taken on merits of each case in the larger interest of the undertaking.

E. Non-recovery of excise duty

8.92. Government levied an excise duty of 10 per cent *ad valorem* on all fertilizers from 1st March, 1969. On 28th February, 1969, the Company had a stock of 16,753 tonnes (loose 14,136 tonnes and bagged 2,617 tonnes) of superphosphate. This stock was declared to the Central Excise Department who gave to understand, according to the Company, that materials manufactured upto 28th February, 1969 midnight and declared to them were to be considered as duty free stock. However, the Deputy Collector of Central Excise who visited the Company's factory on 10th April, 1969, held that excise duty was leviable on loose stock as on 28th February, 1969/1st March, 1969. In the meantime, the Company had sold 2,541 tonnes on which excise duty amounting to Rs. 0.80 lakhs (out of total excise duty payable of Rs. 1.64 lakhs) could not be recovered.

8.93. The Committee enquired as to why a formal advice was not taken from the Excise Department. The Management stated as follows:—

> "It is presumed that the query "why was a formal advice not taken from Excise Department" pertains to a formal, written clearance from the Excise Department before selling the material which was presumed to be free of Excise Duty. A letter No. Tab-14|B|69|290 dated 3-3-1969 from the Range Officer Central Excise Department, Udaipur, was received and the same is reproduced below:—
>
> "Please refer to this office letter No. Tab-14|B|69|283 dated 3-3-1969. Stock of fertilisers at midnight of 28th February, 1969|1st March, 1969 in a fully manufactured condition will not be dutiable. Para I of the above cited letter may please be corrected to that extent."

8.94. The Committee find that as on 28th February, 1969 HZL had a stock of 16,753 tonnes (loose 14,136 tonnes and bagged 2,617 tonnes of superphosphate). As on 10th April, 1969 HZL sold besides bagged stock 2,541 tonnes of loose stock without charging excise duty on the basis of the understanding given to them by the Excise Department that "the stock of fertilizers at midnight of 28th February 1969|1st March, 1969 on a fully manufactured condition will not be dutiable." The Deputy Collector of Central Excise, however, held that excise duty on loose stock (amounting to Rs. 0.80 lakhs) was leviable. The Committee would like the Ministry to take up the matter with the Excise Department in order to clarify the position.

IX

PURCHASE PROCEDURE AND INVENTORY CONTROL

A. Purchase Procedure

9.1. Till January, 1971 when a centralised purchase organisation was established in the Company's head office, purchases were being made by the heads of the Units in accordance with the delegated powers. The detailed purchase procedure was prescribed in December, 1970.

9.2. A test check of 44 purchase orders for amounts exceeding Rs. 50,000 each placed during 1966-67 to 1970-71 for a total value of Rs. 74.57 lakhs revealed that in 42 cases involving Rs. 71.79 lakhs open tenders were not invited and the purchases were made on limited tenders.

9.3. In December, 1971 the Management stated that a large number of stores and equipments required for the mines were mostly proprietary items and the invitation of open tenders would, therefore, mean wastage of money only. In 42 cases mentioned above it was observed in Audit that more than one offer was received and, therefore, the question of these orders being of proprietary nature does not arise.

9.4. The Company is, by and large, making major purchases on the basis of the open tenders from 1971-72 onwards.

9.5. The Committee enquired as to whether any attempt had been made to find the reasons for which no open tenders were invited by the heads of units in the cases mentioned above. The Management stated as follows:—

> The correct position in regard to the 42 purchase orders placed during 1966-67 to 1970-71 for a total value of Rs. 71.79 lakhs is as follows:—
>
> 1. Fourteen purchase orders were placed against open tenders with a total value of Rs. 30,45,075/-

2. Three purchase orders were placed on M.A.M.C. for a value of Rs. 6,26,660/- as per Government directive.

3. Seven purchase orders which were placed against limited tenders on manufacturers/suppliers recommended by STC/DGTD for a value of Rs. 5,66,023/- pertained to items which included imported chemicals, indigenous manufacture of which had not been undertaken by the suppliers concerned, or such items, the manufacture of which was limited to a very few parties including those recommended.

4. Eighteen purchase orders were placed on the basis of limited tenders for a total value of Rs. 29,41,868/-. Limited tenders were invited as the materials involved were known to be supplied by a very limited number of parties.

One of these for a value of Rs. 8,23,875|- for gunny bags was a R|C placed on the ruling market price published by the East India Gunny and Hassain Exchange.

9.6. The Committee enquired as to why this position was not ex- a R/C placed on the ruling market price published by the East India Gunny and Hassain Exchange.

"The organisation lacks certain systems. Even to locate the files and papers and make them available, it was difficult and it took us considerable time. I was myself surprised how it was done without calling tenders. It took us two years to locate because they were from 1966-67 and so on. That is why I say, I plead quilty, the papers could have been maintained better."

9.7. The Committee find from the Audit Report that a test check of 44 purchase orders for amounts exceeding Rs. 50,000 each placed during 1966-67 to 1970-71 for a total value of over Rs. 74 lakhs revealed that in 42 cases involving over Rs. 71 lakhs, open tenders were not invited and the purchases were made on limited tenders. The Management stated that out of the 42 purchase orders, 14 were placed against open tenders; 3 were placed on MAMC as per Government directive; 7 were placed against limited tenders on manufacturers/ suppliers recommended by STC|DGTD; 18 were placed on the basis of limited tenders as the materials involved were known to be supplied by a very limited number of parties; and one was R/C placed

on the ruling market price published by the East India Gunny and Hassian Exchange. The Chairman, HZL, explained during evidence that due to the lack of proper system in the office, the relevant files and papers in this regard could not be located and the position as stated above could not be explained to the audit when they visited the Undertaking's office. The Committee need hardly emphasize that the office system should be streamlined and toned up so that all vital information regarding purchases and all other matters is readily available not only to the audit but also to the Management to enable them to take a correct decision without delay.

B. Non-acceptance of tenders within the validity period.

9.8. Tenders were invited for supply of G.I. pipes of various sizes in May, 1969, and were to be opened on 13th June, 1969. The date upto which the offers should remain valid was not indicated. The Management have, however, now informed the Committee that as per the printed standard terms sent with the tender form, which was in use at that time, a minimum validity of 30 days was asked from the tenders. M|s Bharat Steel Tubes, one of the tenders, or whom the order was placed on 13th November, 1969 had indicated that the rates quoted by them on 13th June, 1969 were valid upto 23rd July, 1969. As the validity of their offer had already expired, they were prepared to supply the pipes only at their current prices. The material was ultimately purchased at higher rates from M|s Shivmoni & Company, Delhi against fresh tenders invited on 16th December, 1969. This resulted in an extra expenditure of Rs. 45,299.

9.9. The Management have *inter alia* stated (October, 1971) that M|s Bharat Steel Tubes Limited, New Delhi had given a very short period of validity of about a month only after opening of the tenders. The processing of the case, namely, the scrutiny of tenders, examination of the case by the finance and the approval by the competent authority took a few months and the case could be finalised only in October, 1969. As the rate of steel had considerably gone up during this period, the firm in spite of Company's best efforts did not agree to increase the validity for the supply of these tubes.

9.10. The Committee enquired of the period of about 4 months in processing the case was not too long. The Management have stated as follows:—

> The period of processing of the above case namely about four months was excessive. Normally, we aim to decide such cases within 60 days from opening of tender, and our

present standard terms which are part of the tender forms, stipulate a minimum validity of 60 days.

9.11. The Committee regret to note that the Management took nearly 5 months to process the tenders which had been invited in May, 1969 for the purchase of G.I. pipes and for which a minimum validity of only 30 days was asked for from the tenders with the result that the validity of the offer made in June, 1969 by M|s. Bharat Steel Tubes, on whom the order was placed in November 1969, had expired in July 1969, and the Company had to ultimately purchase the material at higher rates against fresh tenders from another firm and incur an extra expenditure of Rs. 45,299. It has been admitted that the period of processing the tenders was excessive.

9.12. The Committee fail to understand as to why a period of 30 days was stipulated in the tenders invited in May 1969 when normally according to the Management it takes 60 days to process the tenders. They are informed that now a minimum validity of 60 days is stipulated in the terms of tenders.

9.13. The Committee would like to stress that the undertaking should streamline the system of analysing and finalising the tenders so as to ensure that it does not take the Management more than 60 days as now stipulated, to take final decision on tenders and costly delays do not take place hereafter.

C. Inventory Control

9.14. (a) The following table indicates the comparative position of the stock of stores and spares (excluding raw materials like ore, concentrates etc., finished and semi-finished products and stores-in-transit) at the close of the last nine years:—

(Rupees in lakhs)

Year	Closing balance at the end of the year	Consumption during the year	Closing balance in terms of months consumption.	Purchases during the year
1	2	3	4	5
Mines				
1965-67 (22-10-65 to 31-3-67) . .	48.55	47.57	17.35	62.00
1967-68	53.16	40.57	15.72	45.18
1968-69	58.69	40.42	17.42	45.95
1969-70	59.40	47.06	15.15	47.77

1	2	3	4	5
1970-71	73.87	74.44	11.91	88.91
1971-72	84.07	96.76	10.43	106.96
1972-73	116.99	250.53	5.60	283.50
1973-74	135.38	126.77	12.82	145.16
1974-75	239.77	184.38	15.60	288.77
Zinc Smelter				
1968-69*	34.38	74.77	5.52	63.12
1969-70	38.26	75.62	6.07	79.50
1970-71	44.07	108.49	4.87	114.30
1971-72	46.10	79.70	6.94	81.73
1972-73	108.64	60.11	21.68	104.51
1973-74	115.41	62.34	22.22	68.11
1974-75	114.63**	86.72	15.60	86.94
Lead Smelter				
1965-67 (10/65 to 31-3-67) . . .	6.07	5.83	17.70	8.10
1967-68	7.06	8.29	10.22	9.28
1968-69	6.78	6.19	13.11	8.62
1969-70	4.53	8.66	6.29	6.41
1970-71	4.69	8.25	6.79	8.41
1971-72	7.15	7.88	11.00	7.69
1972-73	5.69	9.67	7.01	10.67
1973-74	6.88	10.66	7.73	11.85
1974-75	12.37	26.02	5.66	31.51
Maton Mines				
1973-74 (for 3 months) upto March,1974	5.70	3.09	..	..
1974-75	25.98***	5.89	52.93	26.17
Total				
1965-67 (10/65 to 31-3-1967) . . .	54·62	53·40	17·39	70·10
1967-68	60·22	48·86	14·79	54·46
1968-69	99·85	121·38	9·87	117·69

—	1	2	3	4
1969-70	102·19	131·34	9·34	133·68
1970-71	122·63	191·18	7·70	211·62
1971-72	137·32	184·34	8·94	196·38
1972-73	231·32	320·31	8·74	398·68
1973-74	263·37	202·86	15·58	226·12
1974-75	392·75	303·01	15·55	433·39

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* The Smelter went into full production in June, 1968.

** This does not include expansion stores valuing Rs. 112.00 lakhs although the value of expansion stores was included in earlier years.

*** This includes substantial amount of stores for expansion/development.

9.15. It will be seen that the closing balance of stores and spares had gradually increased year after year except in the case of lead smelter upto 1970-71 although the consumption had also increased. The purchases made during the year, generally exceeded the consumption. The heavy stock of stores and spares in hand at Zawar Mines was attributed by the Management (November, 1971) to the stocking of steel materials in excess of immediate requirements in order to avoid delay in the development programme. It was further stated in January, 1974, that the increase in the closing balance as on 31st March, 1973 was mainly due to holding of large stocks of steel and cement for the expansion programme of Zinc Smelter and other incoming projects.

9.16. The Management stated further in January, 1975 as follows:

> "The larger inventory holdings (excluding Raw materials, Intermediate and semi-finished products as well as finished goods), are a direct results of, and are justified by the following:—
>
> (i) Considerably increased activities of the Company, i.e. higher production.
>
> (ii) Considerably increased cost of various inputs which is reflected in value of the inventory, even though incremental units, are not necessarily in the same proportion.
>
> (iii) Erratic and varying "Lead-time" supply conditions as a result of the "Seller's market", requiring higher stock levels of essential spares, chemicals, etc.

(iv) These inventory holdings also include steel and cement, although these are part of construction materials bank, required for new and expansion projects of HZL.

9.17. The Committee on Inventory Control appointed by the Government examined the materials management of Hindustan Zinc Ltd. and submitted their Report in March, 1974. The Committee found that inventories of HZL on 31st March, 1972 were Rs. 7.51 crores which were considered in excess by Rs. 2.88 crores on the basis of the levels recommended by the Committee. Bulk of the excess, however, were under finished goods. The Committee recommended that HZL should fix norms of inventories for various categories of stores and subsequently ensure these norms were achieved within 2 years.

9.18. The Committee enquired if the Management had fixed norms of inventories as suggested by the Committee on Inventory Control appointed by the Government and about the steps taken to exercise proper control on inventories in the light of recommendations/observations of the Committee on Inventory Control.

9.19. The Management have stated as follows:—

> Inventory norms on the lines suggested by the Committee on Inventory Control have been fixed by HZL. The following figures will indicate the successful control exercised by HZL on inventory:—

(Rupees in lakhs)

Period	Purchases (+)	Consumption (—)	Excess purchases (—)	Closing balance in terms of months' consumption
20-10-65 to 31-3-67	70·10	—53·40	+16·70	17.39
1967-68	54·46	—48·86	+5·60	14·79
1968-69	117·69	—121·38	+3.69	9·87
1969-70	133·68	—131·34	+2·34	9·34
1970-71	211·62	—191·18	+20·44	7·70
1971-72	196·38	—184·34	+12·04	8·94
1972-73	398·68	—320·31	+78·37	8·74
1973-74	226·12	—202·86	+23·26	15·58
1974-75	864.22	—670·26	+93·96	8·14

9.20 It has been stated that subsequent to 1973-74 the norms were reclassified by the Bureau or Public Enterprises under the following broad headings :—

1. Production materials.
2. Maintenance materials.
3. Other stores other than construction/special work stores etc.

HZL, therefore, adopted the revised form of reporting Inventory levels, and the achievement against this inventory level 1974-75 is given below :—

Classified Stores items	Norms adopted in the inventory budget for the year 1974-75	Inventory level achieved during the year 1974-75
A: Production material	2·6 months	2·89 months
B: Maintenance materials . . .	10 ,,	13·72 ,,
C: Any other stores other than construction/special work stores . .	4 ,,	3·68 ,,

9.21. Explaining the position further during evidence, the Chairman, HZL, stated :—

> "The consumption of stores certainly progressively increased because we increased the activities and the price of stores also increased with the increase in prices all round. In terms of closing balance in a number of months of consumption, it will be seen that while on 31-3-1967 the total inventory was 17 months consumption, in 1972-73 it was only 8 months consumption. It has dropped considerably. And in early 1973-74, admittedly, the total inventory of the year increased to 15 months again. That was because for three months, the smelter was closed and the materials purchased—most of the re-agents and the chemicals were purchased ahead of the year—were left unconsumed. So, the increase in inventory balance in terms of value is not quite indicative.

D. Non-fixation of maximum, minimum and ordering levels

9.22. The maximum, minimum and ordering levels for each store item have not been fixed.

9.23. As regards mines, the Management stated (November, 1971) that these limits are normally fixed after the project comes into production. Till the targeted level of production is achieved the requirement of stores needed for this level of production cannot be fixed at a realistic basis.

9.24. In regard to Zinc Smelter, the Company has stated (August, 1972) that "......zinc smelter having started production in 1968-69 and as the production has not yet established the levels have not been fixed so far except for a few items of consumable nature......

9.25. With the mechanisation of stores accounts and the experience gathered for the level of inventory to be maintained for the smooth running of the plant, action is being taken to fix the various levels of keeping the stores.'

9.26. The Management stated (January, 1975) that maximum, minimum and recordering level was put into force from December, 1973 in respect of 'A' category of items *i.e.* those items where annual consumption value is more than Rs. 10,000 per item and those cover up approximately 80 per cent of the total value of inventory. It was further stated that 'B' and 'C' categories of items would also be covered up progressively.

9.27. The Committee enquired of the minimum and maximum limits had since been fixed for all B&C category items. The Management stated as follows :—

> "B&C category of items which numerically cover about 97 per cent but only about 26 per cent by value is being taken up, have been taken up for fixing maximum and minimum. Indenting, however, is done according to a calendar plan i.e. a fixed period Ordering. Unlike 'A' category items it is proving difficult to fix these levels for 'B' & 'C' in view of the fact that production levels are changing in the various units of Hindustan Zinc Ltd. which is a multi-unit organisation with a heavy expansion schemes under execution in all its units. In fact, the 'B'&'C' classification itself is unstable due to the wide variation in consumption and production level changes. The work, however, would be completed once the expansion is over and production levels are more or less stabilised."

9.28. The Committee note that in terms of months consumption the total inventory holdings have come down from 17.39 months consumption in 1965-67 to 8.14 months consumption in 1974-75. In 1973-74 the inventory holding had jumped upto 15 months' consumption because of the closure of the smelter for 3 months due to power cuts and the materials purchased remained unconsumed. The Committee also note that the norms have been laid down by Bureau of Public Enterprises for 'A' 'B' & 'C' categorises of materials and during 1974-75 the inventory level was 2.89 months consumption as against a norm of 2.6 months consumption in the case of 'A' category, 13.72 month consumption as against a norm of 10 months consumption in the case of 'B' category and 3.68 months consumption as against norms of 4 months consumption. The Committee can hardly ever-emphasize the need to keep a constant watch over the inventory levels of stors, particularly 'A' & 'B' category, and they hope that there will be no let-up in the efforts to keen the inventory levels below the prescribed norms.

9.29. The Committee find that while the maximum, minimum and ordering levels for 'A' category of stores which cover up nearly 80 per cent of the value of inventory have been fixed by the undertaking, the Managemnt are finding it difficult to fix similar levels for 'B' & 'C' categories in view of the changing production levels and expansion schemes going on in the various units. The Management have assured that work regarding fixation of the Maximum, minimum etc. for categories 'B' & 'C' will be completed once the expansion is over and production levels are stabilised. The Committee would suggest that, keeping in view the schedules of completion of the various expansion schemes in hand, the Management should draw up a time-bound programme to complete the work regarding fixation of maximum, minimum etc. for category 'B' & 'C' stores also as without fixing such levels, it will be rather difficult for the Management to keep a proper control over the inventory holdings.

E. Physical verification

9.30. (i) The physical verification of stores, raw materials, finished goods etc., was not done properly and systematically and in November, 1970 the Board of Directors desired that urgent steps should be taken for the physical verification of stores|spares. The work was taken up from January, 1971 and has been completed to the following extent till the end of November, 1971:—

Name of the Unit	Total No. of items	Item verified	% of item verified to total No. of items
Zinc Smelter	9,000	5,961	66·23
Lead Smelter	2,200	593	26·95
Zawar Mines	10,000	1,097	10·97

9.31. The Management have stated (May, 1973) that cent per cent verification of finished goods, raw materials and stores as on 31st March, 1972 has been completed at Zinc Smelter, Lead Smelter and, with the exception of few items of stores, at Zawar Mines also.

9.32. The Committee enquired as to why physical verification of stores, raw materials, finished goods etc. was not done properly and systematically upto 1970. The Management stated as follows :—

> "In the formative years of the Company after it took over the sick undertaking of the Metal Corporation of India, priorities undoubtedly had suffered and it was only in 1967-68 that a stock verification cell was established. The Stock Verification Cell could not be expanded, introducing a systematic and proper Stock verification as all the available personnel were used for verification of the assets of Metal Corporation of India valuation."

9.33. The Committee enquired of physical verification of all items of stores, raw materials, finished goods etc. was being done annually after March, 1972. They also enquired about the excess/shortages noticed during the last 3 years and if the same had been adjusted after proper investigation and results reported to the Board. The Management have stated as follows :—

> "The physical verification of all the items of stores and spares is a continuous process. Kardex of some of the items being not immediately available during stock verification are checked and verified during the next stock verification Barring such cases, the stock verification of all the items

of stores and spares is done cent per cent. The total number of items of stores and spares during 1972-73 was 19285. The percentage of items verified during this year would work out to about 91 per cent

The excess and shortages noticed during the last three years are indicated below:—

Stores	Excesses value	Shortages value
1972-73	2,15,956.83	2,87,325·38
1973-74	1,01,104.67	72,366·51
1974-75	75,596·21	76,314·29

9.34. The position of Physical verification of raw material and finished goods during the years 1972-73, 1973-74 and 1974-75 is as under:—

	1972-73		1973-74		1974-75	
	Excess	Shortage	Excess	Shortage	Excess	Shortage
1	2	3	4	5	6	7	8
1. Rockphosphate .	..	2326 MT	No physical verification	..	10·172 MT	
2. Zinc Concentrate Zinc Smelter		265·132		643·495 MT	153·108 MT	
3. Superphosphate (ZS)	33·053 MT	..	2049·216	..		455·468 MT
4. Cadmium .	1·310 Kg.		0·520 Kg.		..	1.088 Kg.
5. Zinc Ingots .	..	464 nos.	No Shortage or excess	..	2 pieces regularised	..
6. Lead Concentrate (ZM)	46·13 MT	..	428·380 MT	..	428·380 MT	..
7. Zinc Conct. (ZM)	Nil	Nil	..	368·132	..	377·832 MT
8. Lead conct.	(Tundoo)	330·15 MT	..	149·05	96·980 MT	..

1	2	3	4	5	6	7	8
9.	Lead Ingots	. 7 Bars		@	..	24 Bars	..
1 .	Silver	Nil		@		Nil	Nil

*The stock verification during 1972-73 was based on the calculation of consumption figures on an empirical formula of consumption accepted by the Excise Officials as norm. The actual consumption has been constantly varying on account of change in the quality of rock (indigenous rock vis-a-vis the imorted rock). The case was fully investigated by the Dy. GM(S). G.S. (ZS) and the Planning Division for fixing a standard norm of consumption for arriving at a fairly accurate estimate of consumption. This could be possible only in September, 1973. It was also decided that while fresh stock verification is done, the stocks lying in the silos, crusher, its Floor and the nearby adjacent areas should also be surveyed for assessing the total volume. Density analysis should also be made by a Senior Chemist or Asstt. Chief Chemist. Fresh verification could be possible only in May. 1974.

@Physical verification was conducted of these items during 1973-74 and no shortages or excess was reported. However, the records of stock verification have been called from Lead Smelter, Tundoo.

In regard to physical verifiction results of raw materials (Rock Phosphate, Zinc concentrate, superphosphate, lead concentrates), it may be mentioned that these are the bulk stores scattered in various irregular heaps all over the area. Its verification is done on the volumetric and density basis, taking into consideration in the laboratory tests for moisture content etc. and the consumption figures on an estimated basis with refrence to certain norms fixed. This being the case, the results of stock verification have some limitations. These results are, therefore, sent to plant Managers for their comments before making further investigations for adjustments/write off. The subsequent verifications. therefore, indicate the cumulative effect. The ultimate excesses and shortages observed during 1974-75 are being investigated.

In respect of discrepancies in the stock of Lead concentrates at Zawar Mines and a Lead Smelter, Tune of during 1972-73 and 1973-74 at Sl. No. 6 & 8 of the above table, had been adjusted in the account for 1973-74, being compensating errors.

9.35. The discrepancies in physical stock verifications during 1974-75 are under investigations and will be adjusted during the current year. If the value of the losses exceed the wirte off powers of the Chairman-Managing Director, the same will be reported to the Board for necessary adjustments along with the investigation report.

F. Slow-moving and Non-moving Stores

9.36. The Committee enquired if the Management had any system of ascertaining periodically slow-moving and non-moving items of stores and spares. The Management stated as follows:—

> "Hindustan Zinc Ltd. has the system of ascertaining periodically slow moving and non-moving items of stores and

spares since, 1971. During the last three years, the position of such stores is indicated below:—

	No. of items declared surplus during the year	Estimated value of surplus items
1972-73 Not segregated for disposal purposes.		
1973-74	930 nos.	Rs. 5·50 lakhs
1974-75	Do.	Rs. 5·50 lakhs

A. List of such slow-moving and non-moving items were prepared and circulated to all the various units of Hindustan Zinc Limited during the year 1971-72. Most of these items were ultimately consumed within the organisation itself by inter-unit transfer. Hence, no items of slow-moving or non-moving items were declared surplus (during these years) for disposal.

B. Some stores items were sold by auction during the year 1973-74 but these were not really slow-moving/non-moving stores items but these were "beyond economically repairable equipments and scrap items."

C. Slow-moving and non-moving items which have been indicated in our answer have been circulated to all the Public Sector Undertakings and later on published in the News Paper for sale by open tender and if no offer is received, these will be sold by Public auction.

G. Instances of shortages/excess observed during Physical verification

9.37. Instances of shortages/excess observed during the physical verification of raw materials and finished products carried out on certain occasions are stated below in brief:—

ZAWAR Mines

In December, 1970 a shortage of 1,193 tonnes of concentrates valuing Rs. 10,87,300 (at the average rate of Rs. 911.40 per tonne as on 31st March, 1971) was noticed and adjusted in the accounts for the year ended 31st March, 1971 pending investigation.

As regards the shortage of about 900 tonnes forming part of shortage of 1,193 tonnes, the Ministry informed (May, 1975) as follows:—

> "While, there may be some shortage on account of handling and storage losses in the mill, storage yard and storage losses at other places, a bulk of alleged shortage is attributable to the errors in the theoretical calculation. The total shortage works out to about 5 per cent of the total production of about 18,500 tonnes in 14 months ending December, 1970. Out of this, about 2 per cent could be attributable to the handling, flying and long storage losses, the rest could safely be assumed on account of errors in theoretical calculation on production of concentrates."

9.38. As regards the balance of 293 tonnes the following note was recorded in the Company's file in January, 1974:—

> "The balance alleged loss of 293 tonnes was also discussed and it transpired that this loss also pertained to the same period and was attributable to, by and large, the same reasons as given for the theoretical loss of 900 tonnes of Zinc concentrates."

9.39. The results of investigation had not been reported to the Board of Directors till May, 1975.

9.40. Asked as to why the results of investigations were not reported to the Board of Directors, the Management have now stated as follows:—

> "The results of the investigation carried out under the orders of the CMD were accepted by him. The matter was reported to the Board at its 65th Meeting held on 6-9-1975 in terms of the suggestion of the Comptroller & Auditor General."

Zinc Smelter

9.41 *Zinc Concentrates*:—An excess of 1695.489 tonnes of indigenous zinc concentrates was observed on physical verification of the stock in the smelter for the first time on 30th April, 1971. Considering the possibility that the excess might be due to (i) moisture content, (ii) inaccurate recording of the weight by weighbridge, (iii) non-preparation of daily requisitions, (iv) possibility of showing on inflated consumption of zinc concentrates by Roaster section to show more production of calcine, (v) quantity assessed on physical verification being estimates on account of volumetric measurement and the full density indicated by laboratory being possible inaccurate, a fresh verification of stock was suggested in August, 1971 and was conducted in December, 1972 and again in June, 1973 and a shortage of 643.495 tonnes valuing Rs. 8.57 lakhs was finally noticed.

9.42. The matter was further investigated in December, 1973 according to which an excess of 65.974 tonnes of Zinc concentrates was found at the smelter. The investigations made in December, 1973 further revealed a shortage of 453.108 tonnes (dry) valuing Rs. 5.35 lakhs (at average landed cost of Rs. 1.180 per tonne at Kandla) in respect of concentrates imported during 1968 to 1973. The shortage had not been reported to the Board of Directors till May, 1975.

9.43. Asked as to why this matter was not reported to the Board of Directors, the Management have stated as follows:—

> "The procedure is that if the investigations for shortages reveal any actual and avoidable loss and if such a loss exceeds the powers delegated to the Chairman-*cum*-Managing Director, it is reported to the Board. Since the ultimate shortage detected was well within the tolerance limit (on the basis of total tonnage received and consumed), the matter was disposed of by the Chairman-*cum*-Managing Director under the powers delegated to him and not reported to the Board. On the suggestion of the Comptroller and Auditor General however, this has been reported to the Board in their meeting held on 6th September, 1975."

9.44. The Committee enquired if the system of Physical verification which gave such varied results could be considered as reliable. The Management stated as follows:—

> "The system of physical verification has been streamlined from the last stock verification in 1974-75 whereby the samples are drawn more scientifically and moisture content analysed in the laboratory."

9.45. During evidence the Chairman, HZL explained the position as follows:—

> "Now, from 1966 onwards, when the Hindustan Zinc was formed it had a stock of concentrates which it had inherited from the M.C.I. and then it went on adding to it plus the imported concentrates. At no stage any attempt was made to find out the cumulative position total on 10 months basis. If there was a loss of dry powder, there was a handling loss, windage loss, etc. When we made the first check, we started also getting further imported concentrates from Kandla port to Udaipur. There was a handling loss at the port, through the railway wagon and also at the unloading stage. We made an assessment and we found that the loss in these consignments met the norms and were within the limits. We went to the extent of making a test case of packing the entire imported concentrates at Kandla, putting them even in bags and bringing them in sealed containers but we found that the loss even then continued. It is because such fine dust during handling was still being lost."

9.46. The witness further stated as follows:—

> "One of the problems about bulk imported concentrates was that the Kandla Rail weighbridge, for reasons which we do not know, has been generally out of order. The ship's master unloads it on the line basis—the ship sinking upto a particular line for a particular weight. It could be cross-checked only by a weighbridge, which was not functioning at Kandla. So, ultimately it had to be brought to our own weighbridge in Debari for being weighed there, but already transit loss had taken place. We found these losses were within the limits and therefore, it was not necessary to go to the Board for a write-off. It can within my powers, b[illegible]t we kept the Board informed subsequently."

Rock Phosphate

9.47. Shortage in the stock of rock phosphate were noticed on 10th July, 1968 (8.191), 18th August, 1970 (5,575 tonnes) and 28th April 1971 (339 tonnes). The value of the shortage noticed in July, 1968 was Rs. 7 lakhs and that noticed in August, 1970 and April, 1971 together amount to Rs. 5.52 lakhs.

9.48. The shortage observed in July, 1968 was 11 per cent of the total rock phosphate received during January, 1967, to July, 1968. Of the shortage, 4 per cent was attributed to loss due to moisture, crushing, weighing errors, etc. and another 5 per cent to loading, unloading and transit losses from port to zinc smelter. Reasons for balance 2 per cent shortage could not be ascertained. The loss was written off by the Board of Directors on 7th May, 1970. The other two shortages of 5,575 tonnes and 339 tonnes of rock phosphate were also written off in April, 1971 and December, 1972 respectively.

9.49. It has been stated that no shortage in the rock phosphate has been noticed after April, 1971. During evidence the Chairman, HZL stated as follows:—

> "About rock phosphate shortage, the shortage was taken to the Board's level and we wrote off certain quantities in 1970-71 and 1971-72. The problem was, rock phosphate was coming from the Rajasthan Government's mine. It was crushed by contractors appointed by Rajasthan Government and delivered to us by trucks. We had introduced bagging of each consignment. Ultimately we installed our weighbridge and we checked all the consignments. The real problem is and it is being felt by the fertilizer manufacturers in the private sector also no system is yet available to put an automatic belt weighing machine to know how much rock phosphate is flowing into the whole system. It is a very fine powder-100 mesh that goes over a belt conveyer. Any belt weighing machine has a sensitivity of plus or minus 2 per cent. Then there was a loss in dust and dryage, windage etc. We did not think the overall shortage of 2 or 2½ per cent was very serious and did not bring it to the board's notice. Here also it is the cumulative effect of several years' accumulation. We used to get deliveries by truck and the truck used to ride on the earlier delivery. The result was lower portion of rock phosphate got consolidated and when we wanted to do stock verification, we had to do something like a mining operation to dig it out. The figures we got were erratic. So, we got the whole thing removed and did a second verification which took about 6 months."

Single Superphosphate

9.50. Out of a shortage of 4,000 tonnes observed in August, 1970, the shortage of only 2,005 tonnes was written off. During the course of investigation of the remaining shortage and subsequent verification of stock of superphosphate, the shortage was finally established at 455 M.T. in May, 1974.

9.51. The Committee enquired if this shortage had since been investigated. The Management stated as follows:—

> "On account of large accumulation of loose stocks in large heaps during 1974-75 and likely mistakes having possibly crept in during stock verification (which is done on volumetric and density basis) the results of stock verification were not free from doubts on accuracy. A fresh stock verification will be conducted shortly as soon as the stocks of superphosphate (which are about 11,000 tonnes now) are depleted."

9.52. The Committee find that during the course of physical verification of raw materials and finished products carried out on certain occasions, several instances of excesses or shortages were noticed. In December, 1970, a shortage of 1.193 tonnes of concentrates valuing over Rs. 10 lakhs was noticed in the Zawar Mines and adjusted in the accounts for the year ended 31st March, 1971, pending investigations. Explaining the shortage which worked out to 5 per cent of the total production, the Ministry stated that "while there may be some shortage on account of handling and storage losses in the mill, storage yard and storage losses at other places, a bulk of alleged shortage is attributable to the errors in the theoretical calculations. The Committee would like that the losses should be analysed to find out to what extent the shortages were due to handling and storage and to what extent to other causes. The Committee would like that suitable norms should be fixed for handling and storage losses and whenever such norms are exceeded the reasons therefore should be investigated and reported to the Board.

9.53. The Committee are informed that an excess of 1695.489 tonnes of indigenous zinc concentrates was observed in April, 1971 in the zinc smelter. The Committee are surprised that fresh verifications conducted in December, 1972 and in June, 1973 however, revealed a shortage of about 644 tonnes valuing Rs. 8.57 lakhs. When the matter was further investigated in December, 1973 an excess of about 66 tonnes of indigenous zinc concentrates and a shortage of 453 tonnes of imported concentrates (valuing Rs. 5.35 lakhs) were found at the smelter. The Committee are surpirsed to note that these cases of shortage/excess were reported to the Board of Directors only in September, 1975.

9.54. The Committee further note that shortages in the stock of rock phosphate were noticed in July, 1968 (3.91 tonnes) August, 1970 (5,575 tonnes) and April, 1971 (339 tonnes) together valuing at about Rs. 12.52 lakhs. A major part of the shortages was attributed to loss due to moisture, crushing, weighing errors, loading/unloading and transit losses. There was no proper system available for ascertaining consumption of rock phosphate nor was there a weighbridge in the initial stages to check records of consignments. The shortages were written off by the Board. It has been stated that no shortage of rock phosphate has been noticed after April, 1971.

9.55. A shortage of about 4,000 tonnes of single super phosphate was observed in August, 1970, out of which shortage of 2,005 tonnes was written off. During the course of investigation of the remaining shortage and subsequent verification of stock of super phosphate, the shortage was finally established at 455 mt. in May, 1974. It has, however, been stated that on account of large accumulation of loose stocks in large heaps during 1974-75 and likely mistakes having possibly crept in during stock verification the results of stock verification were not free from doubts on accuracy.

9.56. From the foregoing facts, the Committee are led to the conclusion that the system of physical verification which gave varied results in the case of indigenous zinc concentrates and super phosphate and turned an excess of 1695 tonnes of zinc concentrates into a shortage of 644 tonnes could hardly be considered scientific. They are also surprised to note that, while before April, 1971 losses due to moisture, crushing and transit losses etc. were held responsible for shortages in the stocks of rock phosphate, there were no losses reported on these account after April, 1971.

9.57. It has been stated that the system of physical verification has been streamlined from the last stock verification in 1974-75 whereby the samples are drawn more scientifically and moisture content analysed in the laboratory.

9.58. The Committee recommend that the new system of stock verification, which is stated to be scientific should be kept under constant review and improved from time to time in the light of experience so that the Management can keep proper check on stores, raw materials and finished products.

9.59. The Committee also recommend that shortages noticed as a result of stock verification should be got examined independently and responsibility for shortages fixed and the results of examination

placed before the Board, so that the Board may review the position and advise corrective measures to be followed.

H. Physical Verification of Machine and Equipment

9.60. The Board of Directors desired in November, 1970 that urgent steps should be taken for the physical verification of machinery and equipment but no census of the machinery and equipment was taken since the formation of the Company.

9.61. In Note 9 forming part of the accounts for 1973-74 which were certified in September, 1974, the Company stated "while the fixed assets registers for Lead Smelter, Head Office in full and for Zawar Mines in part (plant and machinery) have been completed, for other units these are under compilation. Stock verification of the assets will be carried out after the assets registers of all the units are completed."

9.62. Asked if the asset registers had now been completed and if the assets had been physically verified, the Management stated as follows:—

> "Fixed assets registers for Lead Smelters, Tundo (for post-acquisition period) and Head Office in full, for Zawar Mines in part (plant and machinery) are complete upto 31st March, 1975 and those for other units are complete upto 31st March, 1974. Updating thereof is in process. The verification of respective assets will be carried out on completion of the said registers in full."

9.63. The Committee enquired as to why the asset registers were not prepared for all these years. The Management stated as follows:—

> "The assets registers were maintained but were not complete in the prescribed proforma; the main reason being non-finalisation of the value of plant and equipment taken over from Metal Corporation of India."

9.64. The Committee regret to note that although the Board of Directors desired in November, 1970, that urgent steps should be taken for the physical verification of machinery and equipment but no census of the machinery and equipment was taken since the formation of the company. They are informed by the undertaking that the fixed assets registers were maintained but were not complete and in the prescribed proforma. It has been stated that the

main reason for the delay in completion of the asset registers was the non-finalisation of the value of plant and equipment taken over from the Metal Corporation of India. They are further informed that fixed assets registers for Lead Smelter; Tundoo, (for post acquisition period) and Head Office in full, for Zawar Mines in part (plant and machinery) are complete upto and of March 1975 and those for other units upto end of March 1974. The Committee would like that the fixed assets registers should be brought uptodate in respect of all the units and verified without avoidable delay.

X

ORGANISATIONAL STRUCTURE

10.1. As mentioned in paragraph II, the undertaking taken over by the Government was managed by an Administrator appointed by Government till the formation of Hindustan Zinc Limited on 10th January, 1966. The Company was formed with the following main objects:—

(i) To acquire, take over, manage and develop the undertaking formerly belonging to the MCI and to exploit, to the fullest extent possible, zinc and lead deposits in and around the Zawar area, and

(ii) To carry on trades and business of metallurgists and miners, and production|sale of zinc and lead metals and their products and by-products including fertilizers.

10.2. The activities of the Company comprise development and production of zinc-lead ore from the captive mines at Mochia-Magra and Dalaria in the Zawar region, production of zinc and by-products (namely, sulphuric acid, zinc sulphate, copper sulphate, cadmium) from the Zinc Smelter at Debari and lead and silver from the lead Smelter at Tundoo near Dhanbad. Single superphosphate is produced as a down-stream product to utilize sulphuric acid. Rock Phosphate required for super-phosphate is being extracted by the company from its captive mines at Maton (near Udaipur) from April, 1974.

10.3. Immediately after formation of the company, the Administrator was appointed as the first Managing Director of the Company and on his relinquishment of the charge, another person was appointed as the Managing Director on 1st July, 1966 who continued to hold the office upto 30th March, 1968. Apart from the Managing Director there was:—

—a General Manager,

—a Financial Adviser & Chief Accounts Officer,

—a Chief Executive Officer,

—a Chief Engineer, Zinc Smelter, and

—a Factory Superintendent for Lead Smelter.

The Chief Executive Officer was appointed with effect from 26th February, 1969 as the Chief Sales Manager. On 1st April, 1968, the then General Manager was appointed as the Managing Director of the Company who continued till 25th May, 1970. There was a part-time Chairman all along till 15th May, 1970 when an acting full-time Chairman was appointed who ultimately took over on 25th May, 1970 as the Chairman-cum-Managing Director.

10.4. During 1969-70 the Works Manager, Zinc Smelter was appointed and this incumbent was appointed to the post of Chief of Plannng and Development (Smelters) during 1970-71. The Chief Mining Engineer was re-designated as Superintendent of Zawar Mines and the Factory Superintendent of Tundoo was appointed as the Works Manager, Zinc Smelter during 1970-71. The last mentioned officer was re-designated as General Superintendent (Construction) from 20th September, 1971. The Chief of Planning and Development (Smelters) was appointed to the post of Deputy General Manager (Smelters) from 1st February, 1972 and the Chief Sales Manager was appointed as the Chief Sales Manager and General Superintendent, Zinc Smelter from 20th September, 1971 the Superintendent of Zawar mines was appointed as the Chief of Planning and Development (Mines) from 1st February, 1972. Similarly another officer was appointed as the Chief Geologist during 1971-72.

10.5. Keeping in view the needs of expansion on mining and smelting capacity a revised organisational chart was approved by Board of Directors in January, 1972. Further changes have been made in this revised organisational chart from time to time. The posts of General Superintendent Zinc Smelter, Debari and General Superintendent, Visakhapatnam Smelter were subsequently up-graded to those of Deputy General Manager (Zinc Smelter) Debari and Chief Project Manager, Visakhapatnam Smelter respectively. In April, 1974, a new post of Deputy General Manager (Zawar Mines) was in the Head Office was re-designated as Deputy General Manager (Planning and Development).

10.6. The overall management of the affairs of the Company vests in a Board of Directors consisting of a full-time Chairman-cum-Managing Director and several part-time Directors. The day to-date business is conducted by the Chairman-cum-Managing Director who is the Chief Executive of the Company and has been delegated financial and other powers by the Board of Directors. He is assisted by other officers like (a) Financial Adviser and Chief Accounts Officer (b) Deputy General Manager (Smelters) (Planning Cell) (c) Deputy General Manager (Planning and Development) and (d) Deputy General Manager (Commercial) in the Head Office and by (a) Deputy General Manager. (Zawar Mines) (b) Deputy General Manager (Zinc Smelter) and (c) Chief Project Manager (Vizag) in the units.

10.7. The Financial Adviser and Chief Accounts Officer is in charge of financial control and discipline, costing, internal audit financial accounts. Financial control is exercised through budgets and all financial consultations are made at the Headquarters level with the Financial Adviser and Chief Accounts Officer. The functions of Deputy General Manager (Planning and Development) include planning and development of mines, running of mines and mills and managing drilling section and geological operations. Similarly Deputy General Manager (Smelters), Planning Cell, in the Head Office has three main functions planning and development of new and existing smelters and technological control, development, investigation and research on ore dressing plants. The Deputy General Manager (Commercial) is in charge of sales and purchases of the Company. The Chief Project Manager (Vizag Smelter) is in charge of execution of the Vizag Project. The Deputy General Manager (Zawar Mines) and Deputy General Manager (Zinc Smelter) are in charge of Zawar group of mines and the Zinc Smelter, Dtbari respectively.

10.8. The Public Relations Officer, the Chief Administrative Officer, the Chief Personnel Officer, the Chief Engineer (Civil), the Secretary, the Industrial Engineer and the Part-time Legal Adviser are the other officers who assist the Chairman-cum-Managing Director in his day to day function. The posts of Public Relations Officer and Chief Administrative Officer are, however, lying vacant (January, 1975). After the retirement of the Deputy General Manager (Smelters), in July, 1974, the post has not been filled up so far (April, 1975).

10.9. A Polish specialist joined the Company on 22nd August, 1974 as adviser to the Managing Director on technical matters connected with smelters, to assist in the Preparation of project reports and to supervise research and development activities. Under the terms of the contract the specialist will work as adviser to the Managing Director for two years on a salary of Rs. 8,700 per month free of all taxes, charges and duties besides certain other facilities like free furnished accommodation (including charges for cunsumption of gas and electricity), free transport between residence and place of work, free medical facilities, etc.

Appointment of an officer on special duty (Mines Development)

10.10. An officer on Special Duty (Mines Development) was appointed during 1969-70 to look after the production from the mines and construction of the mill with a capacity of 2,000 tonnes per day. He was also placed incharge of planning and development cell (Mining). He was relieved in April, 1971 of his responsibilities with regard to mine production. Subsequently he was also relieved of the duties relating to mine planning as well as preparation of project reports for Balaria and Maton mines, leaving him free to devote entirely to the timely commissioning of the mill. There was delay in the completion of the mill. He was relieved of this duty also from 29th January, 1972 when he was on leave and the Ministry was informed accordingly. In February, 1972, while approving the Company's action, the Ministry placed his services at the disposal of the Bureau of Public Enterprises for further posting. In the absence of any orders from the Bureau of Public Enterprises and at the suggesting of the Ministry, the Officer was allowed to join, on the expiry of his leave on 29th February, 1972, the Delhi Office of the Company. He continues to be there without any work assignfied to him (December, 1974). The Company is incurring an expenditure of Rs. 3,700 per month on the Officer i.e. Rs. 44,400 per annum from 29th February, 1972. A deputy General Manager (Mines) joined the head office of the Company on 18th September, 1972 to look after the work previously assigned to this Officer.

10.11. The Ministry have stated (January, 1975) *inter alia* as follows:—

> "Various attempts were made by the Government to find an alternative post for the officer outside the Hindustan Zinc Limited, but without success. The cadre authority of the IMP does not have any post under its control to which he could be transferred. The power to make appointment to posts below the top level vests in the public enterprises. This explains the difficulty of Government in finding an alternative post for the officer outside Hindustan Zinc Limited. Efforts are still being made to find a suitable posting for him in one of the mining companies or establishments under the control of the Central Government."

10.12. During evidence the Additional Secretary of the Ministry stated as follows:—

> "It is not within the competence of HZL|Department of Mines to dispense with has services, because he belongs to IMP. That cadre authority can reappoint him somewhere or dispense with his services, if the law permits it. After we declared him surplus to our requirements, what more can we do? I am pleading helplessness."

10.13. In a note submitted to the Committee, the Bureau of Public Enterprises have stated that on the basis of his exceptionally good academic qualifications and varied experience extending over more than 21 years in deep underground mining, both in private and public sector the officer was appointed on Special Duty (Mine Development) in Hindustan Zinc Ltd., Udaipur.

10.14. The Committee pointed out that in February, 1972 the services of the officer were said to have been placed at the disposal of the BPE for posting elsewhere. They enquired about the difficulties of the Bureau in finding a suitable posting for him. The BPE have stated as follows:—

> "The Department of Mines sought his transfer from Hindustan Zinc Ltd. in October, 1971 on the ground that the Corporation would not be able to employ him usefully any longer. The BPE is the Cadre Authority of the IMP. However, the Cadre Authority has no authorised posts under its administrative Control either in Government or in the public sector enterprises. The national cadre posts of the IMP are posts in the Government companies, especially in the public enterpries under the administrative control of the Ministries participating in the IMP Scheme. The public sector enterprises had earlier been delegated powers to make all appointments below the Board level and below the level of General Managers of constituent units. Under the managerial personnel policy announced in August, 1974, further powers have been delegated and Government have retained the prerogative of appointments only at the Board level."

10.15. It has been further stated as follows:

> "It has since been decided that the officer may be accommodated for sometime in the BPE against a post of Deputy

Adviser (Production). This will be a temporary arrangement."

10.16. Asked about the justification for the retention of this officer on the rolls of HZL when he was not doing any work for them. The BPE have stated as under:—

> "Hindustan Zinc Ltd. sought the transfer of the officer from the Corporation in 1971. HZL also moved him to New Delhi in order to avoid demoralisation and to prevent difficulties of the Corporation at its operational site. It will be realised that as a permanent central government officer, he has, in the normal course, a right to hold a post till superannuation. Under the IMP Scheme these posts are in the public sector enterprises. As the Cadre Authority, with the limitation of not having any duty posts under its administrative control nor any power to post an IMP officer to any of the undertakings in the Public Sector, the BPE has made and continues to make every effort to find a suitable placement for the officer. Till these efforts succeed, he has to be retained in the company where he had been posted.
>
> It may be mentioned that the provisions of the rules regarding compulsory retirement of permanent Government officers at the age of 50 are not applicable in the case of this officer as he entered Government service after attaining the age of 35. He has just crossed 52 years and his case will come up for review only a little before he attains the age of 55 years.
>
> In this connection, it may also be noted that the question of abolition of the Industrial Management Pool is presently under the consideration of Government.

10.17. The Committee find that an Officer on Special Duty (Mines Development) was appointed during 1969-70. It has been stated by the Bureau of Public Enterprises that the Department of Mines sought his transfer from Hindustan Zinc Ltd. in October, 1971 on the ground that HZL would not be able to employ him usefully any longer. He was relieved of his duties in January, 1972, when he was on leave and the Ministry placed his services at the disposal of the Bureau of Public Enterprises for further posting.

In the absence of any orders from the Bureau of Public Enterprises and at the suggestion of the Ministry, the officer was allowed

to join, on the expiry of leave in February, 1972, the Delhi Office of HZL.

10.18. The Committee are surprised to note that the said officer who was appointed in 1969-70 on the basis of his qualifications and mining experience, could not be usefully employed from February, 1972 onwards and continued to be there without any work assigned to him and the undertaking had been incurring an expenditure of Rs. 3,700 per month on the officer i.e., Rs. 44,400 per annum from the aforesaid date. It has been stated by the Ministry that "it is not within the competence of HZL|Department of Mines to dispense with his services, because he belongs to the Industrial Management Pool. That cadre authority can reappoint him somewhere or dispense with his services, if the law permits it." The Bureau of Public Enterprises have, however, stated that the cadre authority has no authorised posts under its administrative control either in Government or in Public Sector Enterprises. The Public Sector Enterprises had earlier been delegated powers to make all appointments below the Board level and below the level of General Managers of constituent units. Under the managerial personnel policy announced in August, 1974, further powers have been delegated and Government have retained the prerogative of appointments only at the Board's level. Government should have considered the question of placement of officers of the IMP, like the one in the present case in finalising the managerial personnel policy for public undertakings and announcing it in August, 1974.

10.19. It has been added that efforts were, however, made to sponsor the officer concerned for posts in various Government companies/organisations. Unfortunately these efforts did not bear fruit. The Bureau have stated that it has since been decided that the officer might be accommodated for some time in the BPE against a post of Deputy Adviser (Production) and this would, be a temporary arrangement. The Committee are surprised that it has not been possible for the Government to usefully employ the officer who was recruited on the basis of high qualifications and mining experience in other mining industries. The Committee fail to understand if the officer's services had not been useful because of other reasons why suitable action could not be taken against him under the Rules. The Committee recommend that the matter should be examined in depth in order to review the entire procedure and authority of Government/Public Undertakings in regard to appointments and termination of services of officers when these are no longer required, so as to avoid recurrence of such cases. The

Committee would like that the whole matter regarding the appointment of the officer as well as his continuance at the Delhi Office of HZL without any work thereby causing avoidable expenditure of about Rs. 1.8 lakhs should be investigated and responsibility fixed and lessons learnt for future. The Committee would like to be informed of the action taken in the matter.

10.20. The Committee are informed that the question of abolition of Industrial Management Pool is presently under the consideration of Government. The Committee urge that in taking decision it should be ensured that the services of officers already in the Industrial Management Pool are put to best use in public interest.

XI

FINANCIAL MATTERS

A. Capital Structure

11.1. The Company was incorporated on 10th January, 1966 with an authorised capital of Rs. 10 crores divided into 1,00,000 shares of Rs. 1,000 each. As on 31st March, 1974 the authorised capital of the Company was Rs. 30 crores which was raised to Rs. 60 crores on 23-9-1975. The paid up capital of the Company as on 31st March, 1975 stood at Rs. 19.000 crores. As on 31st March, 1975 unsecured loans from the Government of India and the Government of Rajasthan stood at Rs. 7.93 crores and Rs. 61,145 respectively. On the same date seemed loans for Banks stood at Rs. 4.82 crores. The debt equity ration as on 31st March, 1975 was Rs. 0.42:1.

11.2. The Committee enquired as to why the normal pattern of financing *viz.*, 1:1 not followed on the case of H.Z.L. The Management stated as follows:—

> "Normal pattern of financing, namely, 1:1 for equity and loan was, by and large, followed till 31st March, 1972. The equity on 31st March, 1972 was Rs. 9.55 crores and the loans stood at Rs. 9.85 crores (including the short-term loan of Rs. 50 lakhs).
>
> For the new schemes and projects, namely Zinc Smelter Debari Expansion, Vizag Zinc Smelter and Balaria Mines, the detailed project reports provided that although equity and loan ratio will be 1:1, financing in the earlier years of construction will be in the form of equity. This was with a view to reduce the quantum of pre-production interest to be capitalised. Funds were, therefore, released by the Government in the form of equity during 1972-73 and 1973-74.
>
> During 1974-75 no budgetary support was given to the Company and the entire financing was done from the Company's internal resources. For 1975-76 the pattern has

changed and 1/3rd of the total budgetary support of Rs. 15 crores will be realised in the form of loans.

B. Overdue Instalment of Government Loans

11.3. The long term loans granted by Government carry interest at the rate of 7% per annum (7½ per cent per annum with effect from 14th September, 1971) and a liability for penal compound interest of 2½% on all overdue instalments of principal and/or interest. A moratorium from the date of drawal of the loans upto the period of two years from the date of commencement of production has been allowed in respect of repayment of the principal subject to the condition that the total period of moratorium does not exceed five years from the date of disbursement of the loans and the repayment of loans is completed within 15 years from the date of drawal.

11.4. The first loan of Rs. 1.05 crores was disbursed by Government in two instalments in July, 1966 and August, 1966. The zinc smelter (with the exception of sice furnace) went into production in January, 1968 and accordingly the repayment of loan should have started from January, 1970, but the Company took the view that as the loan was granted to meet the expenditure on the composite project for the development of mines and the completion of the zinc smelter, its repayment should commence on the expiry of five years from the date of its drawal *viz.* July, 1961 by which time the development of Zawar mines was also expected to be completed. Government was requested in September, 1969 to confirm this view.

11.5. In October, 1971, Government decided that for the purpose of repayment of loans, 16th November, 1968 should be taken as the date of commencement of production of zinc metal with the commissioning of the sice furnace. The Company was therefore, asked to make payment of the instalments of loans amounting to Rs. 5.42 crores which had already fallen due and which would fall due thereafter on due dates. In January, 1972, it was further clarified by Government that the instalments of loans should be repaid on the anniversary dates falling after 16th November, 1970.

11.6. Out of the total instalment of Rs. 17.28 lakhs, Rs. 55.64 lakhs, Rs. 65.38 lakhs, Rs. 65.38 lakhs and Rs. 66.38 lakhs falling due for repayment during 1970-71, 1971-72, 1972-73, 1973-74 and 1974-75 respectively payments of Rs. 20.68 lakhs, Rs. 40.35 lakhs, Rs. 77.89 lakhs and Rs. 48.87 lakhs were made during the years 1971-72. 1972-73, 1973-74 and 1974-75 respectively leaving a balance of overdue instalments of Rs. 82.28 lakhs, as on 31st March, 1975. The penal interest on the overdue instalment of principal worked out Rs. 5.69 lakhs upto 31st March, 1975 of which a sum of Rs. 4.41 lakhs, was paid on 30th April, 1975.

11.7. Asked as to why the instalments of loans were not paid on due dates so as to avoid penal interest. The Management stated that this sizeable amount could not be paid from the Company's internal resources in one lump sum. HZL has increased the amount of the annual instalments for repayment of Government loans from 1973-74 so as to ensure that the loans are repaid completely within the stipulated period of fifteen years.

11.8. During evidence the Chairman, HZL, however, stated as follows:—

> "This is pure commercial prudence. If I return the money to the Government and take loan from the banks, I will have to pay 16% interest. Here I, get away by paying 9.1%. This is the truth.

11.9. The witness further stated as under:—

> "One of the reasons was that, we took the entire loan against what is known as 'integrated scheme', including the mill and the smelter. We presumed that the repayment will start after the entire integrated scheme is commissioned.
>
> We checked up. We did not get the Government's categorical reply to it, for a long time. We also naturally did not press for a categorical reply. It suited us to continue with the loan."

11.10. The Committee enquired as to why the Ministry took two years to decide about the date when the repayment of loans was to commence. In a note submitted to the Committee the Ministry have stated as follows:—

> "In September, 1969, HZL represented that though the zinc smelter was commissioned in 1968, the mine development had not been completed. As such the repayment may commence on the expiry of the total period of five years from the date of disbursement.

On 18-11-69, HZL was informed that the zinc smelter went into production in Jan., 1968 and as such the period of moratorium of two years from the date of commencement of production would expire in January, 1970, when the first instalment would be due and the company should pay the first instalment on the due date.

2. HZL had been informed as early as November, 1969 that repayment of the loans should commence from 1970. As such no delay was involved in communicating the Government's decision. As would be seen from the chronology of correspondence given below, the Company made repeated representations which could not be acceded to by the Government. The moratorium period was extended to the maximum possible period.

29-11-1969	. Second representation from Hindustan Zinc Ltd. for moratorium period of 5 years.
13·5·1970	. Hindustan Zinc Ltd. informed after consulting Finance/BPE that was not possible to accede to the request.
23-5-1970	. Third representation from Hindustan Zinc Ltd. for re-consideration of the decision.
1-8-1970	. Hindustan Zinc Ltd. informed, after consulting Finance and BPE that date of commencement of production was the date from which regular uninterrupted production had been going on. Company was also advised to come up for relief in case of difficulties in repayment of the loan, explaining the circumstances and supported by cash flow statements.
28-11-1970	. Fourth representation from Hindustan Zinc Ltd. for repayment of loans after the period of five years.
7-10-1970	. After examining the matter further the date of commencement of production of saleable product, *viz.* zinc ingots, was reckoned as 16-5-1968 and allowing six months, Hindustan Zinc Ltd. allowed moratorium period upto 16-11-1970 (2 years from November, 1968

11.11. The Committee find that a long term loan was granted by Government to HZL for the implementation of the integrated scheme including the mill and the Smelter. The first loan of Rs. 1.05 crores was disbursed in 1966. A moratorium from the date of drawal of the loans upto the period of two years from the date of commencement of production had been allowed in respect of repayment of the principal subject to the condition that the total period of moratorium did not exceed five years from the date of disbursement of the loans and the repayment of loans was completed within 15 years from the date of drawal.

11.12. The Committee regret to observe that in the absence of a clear decision regarding the date of commencement of production

the Management had been reckoning the period from the date of commercial production and delaying the repayment of loan instalments with the result that the financial burden on the company had been increasing from time to time and the balance of overdue instalments as on 31st March, 1975 amounted to Rs. 82 lakhs and the penal interest to about Rs. 6 lakhs. While it may be logical to reckon the period for repayment of loan from the date of commercial production, the Committee feel that date of commencement of commercial production is a concept which will be varying and disputable and according to the discretion of Management. The Committee therefore recommend that the terms and conditions of loan should clearly stipulate the date of commencement of repayment of loan and interest so that there is no ambiguity in this regard. In their opinion this will also enable the Management to gear its machinery, cut short delays in gestation period and accelerate generation of resources. The Committee would also like that Government, in its turn, should take positive action to review the position of outstanding loans and initiate measures for prompt realisation of the instalments of loans and interests due.

C. Financial Control

11.13. In their 15th Report (Fourth Lok Sabha—April 1968) on Financial Management in Public Undertakings, the Committee on Public Undertakings recommended that the main functions, responsibilities and powers of the Financial Adviser should be clearly laid down. In pursuance of this recommendation, Government circulated in May, 1969 a note *inter alia* indicating the main functions and responsibilities of the Financial Adviser and asked the public sector undertakings to adopt the same into or with such alterations, adaptations, as might be necessary. The note also provided that the Board of Directors should determine matters which would be reserved (i) for concurrence of the Financial Adviser (ii) for consultation with the Financial Adviser and (iii) where the Financial Adviser need not be consulted.

11.14. While inviting attention to the observations of the Committee on Public Undertakings as contained in para 10.42 of their 19th Report (5th Lok Sabha) on Heavy Electricals (India) Ltd. regarding delay in the consideration of the BPE's guidelines issued in May, 1969 by the Board of Directors, the Bureau of Public Enterprises desired in their O.M. of 24th November, 1972 that all important orders issued by the Government should be brought to the notice of the Board of Directors who, in turn, should consider them promptly and take follow up action without delay. This office memorandum alongwith that of May, 1969 was placed before the Board of Directors for information in its meeting held on 13/14 January, 1973. It was explained by the Chairman in this meeting that a further paper would be placed in due course with regard to the powers to be exercised by the Financial Adviser. No such paper has been placed before the Board of Directors so far (May, 1974). The Company has stated (November, 1973) that under the existing procedure, the Financial Adviser is associated in all decisions connected with policy matters; all financial proposals and other matters having financial bearing are invariably routed through him.

11.15. The Committee enquired if further report had been placed before the Board of Directors. The Management stated as follows:—

> "It is correct that a paper was desired to be placed before the Board for delegating powers which are to be reserved for F.A. However, since, the guidelines enunciated by the COPU were being followed in full and F. A. was being consulted in matters referred to in the guidelines, with the exception of cases where officers excercised their powers under the powers delegated to them on the authority of the Board the matter was not taken back before the Board. The matter is being processed for being placed before the Board.

11.16. The Committee enquired as to why the guidelines issued by BPE in May, 1969 were not put up to the Board till January, 1973. The Management have stated as follows:—

> "The Bureau of Public Enterprises, while circulating the guidelines dated 5th May, 1969, did not indicate that for adoption of these guidelines it was required to get the Board's approval. It was only on 27th December, 1972, that HZL received a copy of BPE's letter dated 24th November, 1972 forwarding the accepted recommendations of COPU's 19th Report on Heavy Electricals (India) Limited, in which a reference was made to the aforementioned guidelines, and HZL was asked that this should be brought to the notice of the Board of Directors who, in turn should consider them and take follow-up action without delay. After receipt of these instructions, the guidelines dated 6th May, 1969 were placed at the first available

meeting of the Board held thereafter, *i.e.* on 14th January, 1973".

11.17. The Committee regret to note that the Management did not take any action on the note circulated by Government in May, 1969 inter alia **indicating the main functions and responsibilities of the Financial Adviser drawn up on the basis of 15th Report (1968) on Financial Management in Public Undertakings and asking the Public Undertakings to adopt the same with such alternative, adaptation as might be necessary. The Management was again requested in November, 1972 that all important orders issued by the Government should be brought to the notice of the Board of Directors who in turn, should consider them promptly and take follow-up action without delay. The note received in 1969 was then placed before the Board of Directors, for its consideration in January, 1973. Although a further paper was desired to be placed before the Board for delegating powers which were to be reserved for the Financial Adviser, it has not been done so far.**

11.18. The Management stated that since the guidelines circulated by the Committee were being followed in full, the matter was not again placed before the Board but its was now being processed for being placed before the Board. The Committee urge that the matter should be processed without delay and placed before the Board and the functions/responsibilities and powers of the Financial Adviser should be clearly and precisely laid down.

11.19. The Committee would also like that the BPE should not rest content with mere circulation of the instructions/guidelines but should review the implementation thereof and take prompt action so as to bring any information in this regard promptly to the notice of the administration Ministries concerned.

D. Accounting System

11.20. Although the Company was formed in January, 1966, an Accounting Manual laying down the detailed procedure for compilation and maintenance of accounts has been introduced only in June, 1974 with the result that no uniform accounting procedure could be followed in the various units of the Company till them.

11.21. The Committee enquired if the time taken in compiling the accounts manual was justified. The Management have stated as follows:—

"Immediately-after formation of Hindustan Zinc Ltd., the accounting procedure as in vogue under Metal Corporation

> of India was ontinued till after start up of the Zinc Smelter in 1968. The need for changing the procedure to bring about degree of uniformity and integration was felt. The Company's accounts were, however, in arrears and all efforts were diverted to the closing of the annual accounts. This could be attained only in 1970-71 when all annual accounts were brought upto-date. Thereafter, an integrated view was taken for drawing up detailed procedure and rules and regulations on purchase, sales, cost accounting, establishment, etc. While rules and regulations were completed faster, the task of finalising an Accounts Manual which, as may be appreciated, had to cater to the diverse needs of the Company's activities (*viz.*, mining, ore dressing, Lead smelting, zinc smelting etc.) took a longer time. It was with the assistance of a firm of Chartered Accountants engaged for the purpose in February, 1973 that the manual was finally drawn up in 1973-74 and introduced from the year 1974-75."

E. Internal Audit

11.22. The Mines and the lead smelter are in production since the very beginning and the zinc smelter started production from January, 1968. The Company, however, introduced a full fledged internal audit system from July, 1973, was submitted to the Board in August, 1974. The Board authorised the Managing Director to approve it with such modifications as may be considered necessary. The manual was finalised and approved by the Managing Director on 15th October, 1975. The reports of the internal audit section are submitted to the Financial Adviser and important points are brought to the notice of the Chairman-*cum*-Managing Director. No report is, however, submitted to the Board of Directors.

11.23. The Committee enquired if it was not desirable to report important points noticed by the Internal Audit to the Board of Directors. The Management have stated as follows:—

> "All important points are brought to the notice of the Chairman-*cum*-Managing Director. In case any of these points are considered important by the Chairman-*cum*-Managing Director, the same will be reported to the Board.

11.24. The Committee regret to note that though the company was formed in January, 1966, it was only after eight years that an accounting manual laying down the detailed procedure for completion and maintenance of accounts has been introduced with the re-

sult that no uniform accounting procedure could be followed in the various units of the company. The delay was stated to be due to non-finalisation of accounts of earlier years, the arrears of which could be completed only in 1970-71. The Committee regret that even after this there has been a delay of three years in the finalisation of the manual.

11.25. The Committee also note that a full-fledged internal audit system was introduced from July 1973 and the Internal Audit Manual was finalised in October, 1975. The Committee find that, while important points in internal audit reports are brought to the notice of the Chairman-cum-Managing Director, these are not submitted to the Board of Directors. The Management have stated that in case any of these points are considered important by the Chairman-cum-Managing Director, the same "will" be reported to the Board. The Committee would like to draw attention to their recommendations in Paras 204 to 207 of their 15th Report (1968) and reiterate that the Internal Audit Wing should function as an effective tool of financial control and its functions should include a critical review of the systems, procedures and operations as a whole. They need hardly point out that its reports should receive serious considerations at all levels and a report of the points together with the action thereon should be placed before the Board of Directors from time to time.

F. **Financial Position**

11.26. The table below summaries the financial position of the Company under broad headings for the last seven years:—

(Rupees in lakhs)

	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
	1	2	3	4	5	6	7
Liabilities							
Paid-up-capital	617·00	661·17	784·67	955·18	1,340·19	1,900·19*	1,900·19
Reserve and surplus	3·49	3·49	3·49	3·49	3·49	317·99	1,219·69
Borrowings:							
(i) from the Govt. of India	542·71	631·67	785·22	983·52	943·17	819·66	793·17
(ii) From the Govt. of Rajasthan	1·38	1·29	1·09	1·09	0·87	0·74	0·61
(iii) Foreign credit (Deferred payment including interest)	59·66	48·76	35·19	23·35	10·98	..	..
(iv) Bank Cash Credit	35·33	34·84	72·80	293·53	198·25	..	315·83
(v) Loan from Bank against security (against short term deposit)	..					..	166·36
Trade dues and other current liabilities (including provisions)	370·91	412·31	435·15	448·66	489·39	666·09	867·60
TOTAL :	1,630·48	1,793·53	2,117·61	2,708·82	2,986·34	3,704·69	5,263·45

Assets							
Gross Block	1,219·36	1,313·88	1,405·78	1,689·44	1,852·87	2,028·30	2,381·56
Less Depreciation	168·06	305·47	188·27	252·96	347·21	505·72	764·54
Not Fixed assets	1,051·30	1,008·41	1,217·51	1,436·45	1,505·66	1,522·58	1,617·02
Capital works-in-progress	..	..	..	8·02	24·65	59·72	679·85
Current assets, loans and advances	459·09	509·08	662·72	952·60	978·87	1,330·00	2,440·33
Investment	0·27	0·27	0·27	0·27	0·27	0·27	0·27
Miscellaneous Expenditure:							
(i) Mines exploration and development expenses	27·64	33·63	59·90	101·32	219·23	451·97	518·73
(ii) Expenditure during construction	..	..	..	8·93	79·26	311·11	..
(iii) Deferred revenue expenditure	56·41	58·06	51·10	48·76	43·35	29·04	7·25
(iv) Profit & Loss Account	35·81	184·08	126·11	152·47	135·05	..	..
TOTAL	1,630·48	1,793·53	2,117·61	2,708·82	2,986·34	3,704·69	5,263·45
Capital employed	1,155·92	1,122·61	1,466·50	1,966·30	2,030·20	2,274·86	3,325·28
NET WORTH :	500·63	388·89	551·05	647·19	866·79	1,426·07	2,593·90

NOTE: 1. Capital employed represents not fixed assets plus working capital.

2. Net worth represents paid-up capital plus reserves and surplus less intangible assets.

3. *Includes share application money Rs. 160 lakhs.

4. During 1970-71, the Company switched over from reducing Balance method to Straight line method of depreciation as per Government's instructions and wrote back a sum of Rs. 175·75 lakhs in the accounts for 1970-71 (September, 1974). The depreciation so far written off is provisional. The management stated that when the final valuation of assets was known, the amount of depreciation would also be recalculated, wherever necessary taking into account the pre-acquisition use of assets taken over from the MCI

G. Working Results

11.27. The working results of the Company for the last seven years are indicated below:—

(Rupees in lakhs)

	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Sale proceeds	616·43	538·33	455·18	496·37	882·18	1,367·55	2,154·99
Cost of products sold	651·24	674·60	676·92	525·50	839·76	862·90	1,261·54
Loss (—)/Profit (+)	(—)34·81	(—)136·27	(—)121·74	(—)29·21	(+)42·42	(+)504·65	(+)893·45
Percentage of cost of products sold to sale proceeds	105·6	125·3	126·7	105·9	95·19	63·10	58·54
Value of production (including unsold stock)	473·73	518·77	493·77	779·16	863·24	1,436·35	2,434·36
Percentage of value of production :							
(a) To net worth	94·6	133·4	89·5	120·4	99·6	100·7	93·8
(b) Total net assets	29·1	28·9	23·3	28·8	28·9	38·8	46·3

11.28. It will be seen that the percentage of cost of sales to sales gradually increased upto 1970-71 but came down in 1971-72, 1972-73, 1973-74 and 1974-75. The percentage of value of production to total net assets came down in 1970-71, 1972-73, 1973-74 and 1974-75. The percentage of value of production to net worth also came down in 1970-71 as compared with 1969-70 with some improvement in 1971-72, it again has shown an unfavourable trend.

The price of zinc ruling in 1972-73 was Rs. 4,090 per tonne. This was increased to Rs. 6,417, Rs. 6,660, Rs. 9,435 and Rs. 13,710 per tonne with effect from 1st April, 1973, 1st July, 1973, 1st October, 1973 and 1st January, 1974 respectively. The gross additional sales revenue earned from increase in price of zinc during 1973-74 as compared to that prevailing in 1972-73 amounted to about Rs. 5.46 crores leading to substantial improvement in the working results of the Company.

11.29. The Committee note that the Hindustan Zinc Ltd., was formed on 10th January, 1966 to own and manage the undertaking of the Metal Corporation of India, acquired by the Central Government by MCI (Acquisition of Undertaking) Act, 1966. The Hindustan Zinc Ltd., has been working the lead zinc mines in the Zawar area of Rajasthan, a zinc smelter and ancilliary plants at Debari (near Udaipur) and a lead smelter at Tundoo (Bihar).

11.30. The Committee also note that the undertaking is engaged in the implementation of the following projects:—

(1) Debari Zinc Smelter expansion.

(2) Vizag Zinc Smelter Project.

(3) Tundoo Lead Smelter modernisation (2nd phase).

(4) Development of following mines:—

  (a) Balaria Mine.

  (b) Rajpura-Darbia Mine.

  (c) Zawarmala-Baroi Mine.

Besides a project report for development of the lead ore deposits in Sargipalli (Orissa) has been under the consideration of Government and an investment decision is likely to be taken soon.

11.31. The Committee are informed that the expanded Debari Zinc Smelter and the Vizag Zinc Smelter are likely to be commissioned by about the latter part of 1976. The Committee have given

their comments in regard to these projects in the relevant chapters of the Report.

11.32. The Committee would, however, like that the Ministry/Undertaking should keep a strict watch on the capital cost of the various projects which are under way, complete the projects expeditiously and commission them without delay.

11.33. The Committee would suggest that the undertaking should right from the beginning, ensure that there is no over-staffing in any project and over heads are kept to the minimum.

11.34. The Committee would recommend that there should be a built-in accent on productivity in the wage structure to subserve the larger public interest.

11.35. The Committee would stress that strict financial control should be exercised on all the activities of the undertaking in the various units. The Corporation should introduce the system of management accountancy to assist the Management and the Board to take right decisions.

11.36. The Committee would like the Government's representatives on the Board to pay attention to the afore-mentioned aspects more particularly to the necessity of ensuring that the expenditure on the projects under implementation does not get so inflated as to militate against the viability of the project.

11.37. The Committee note that after incurring losses during initial years of working, the undertaking turned the corner and made profits (before tax) amounting to over Rs. 42 lakhs, Rs. 504 lakhs and Rs. 893 lakhs during the years 1972-73, 1973-74 and 1974-75 respectively. They find that the ruling price of zinc has been increased from time to time from Rs. 4090 per tonne in 1972-73 to Rs. 13710 per tonne from 1st January 1974 and the additional sales revenue earned from increase in price during 1973-74 as compared to that prevailing in 1972-73 amounted to Rs. 5.46 crores and this contributed to substantial improvement in the working results of the company. The Committee have already pointed out that the cost of mining operations have been increasing and cost of mine ore, recovery efficiency etc., are important factors which influence the cost of production of end products. The Committee have already given recommendations in this regard. They would like to reiterate that the undertaking should introduce scientific system of costing in all its projects so that analysis of the cost of production

may be made on correct lines and economies effected wherever necessary.

11.38. The Committee feel that unless a careful analysis of the profitability is made to assess the profitability separately due to mining operations and the price increase, no useful and effective management control could be exercised. Since there would be a limit on the increase in the price of zinc, it is imperative for the undertaking to improve operational efficiency and effect economies in cost of producton if it has to continue to earn profits and improve profitability.

NEW DELHI;
April 26, 1976

Vaisakha 6, 1898 (*Saka*).

NAWAL KISHORE SHARMA,
Chairman,
Committee on Public Undertakings.

APPENDIX I

(*Vide* Para No. 8·36 p. 219 of the Report)

Statement showing sale of Silver through Metal Distributors.

Sl. No.	Date of Sale	Quantity sold (Kg.)	Rate on which sold	Bullion market rate on date of sale
1	2	3	4	5
1 (i)	11-4-67	26·765	355	353·25
(ii)	11-4-67	420·529	352	353·25
2	5-5-67	199·139	357	358·50
3	25-5-67	200·312	358	361·00
4	7-7-67	202·660	346	343·00
5	11-7-67	204·253	346	343·00
6	26-7-67	208.172	367	364·50
7	9-8-67	209·308	366	364·50
8	17-8-67	298·984	368	365·25
9 (i)	8-9-67	301·622	364	366·00
(ii)	8-9-67	25·157	363	366·00
10	9-9-67	321·845	366	366·00
11	26-9-67	849·149	373	373·00
12	13-1-68	199·186	507	510·25
13	22-1-68	499·406	508	514·50
14	2-2-68	310·665	513	514·50
15	29-2-68	23·180	503	510·25
16	15-3-68	403·122	510	523·00
17	18-3-68	39·321	520	531·50
18	19-3-68	59·164	510	518·75
19	29-3-68	33·007	515	521·25
20	30-3-68	254·935	518	523·00
21	22-5-68	29·293	540	544·50

1	2	3	4	5
22	7-6-68	172·767	517·50	527·25
23	14-8-68	464·230	528·00	537·50
24	28-8-68	113·510	549	559·75
25	25-9-68	289·166	604	617·26
26	20-11-68	155·333	580	589·00
27	31-1-69	206·204	530	542·75
28	13-2-69	151·005	512	527·25
		6,871·389 Kg.		

APPENDIX II

Summary of Conclusions/Recommendations of the Committee on Public Undertakings contained in the Report

S. No.	Reference to Para No. in the Report	Summary of Conclusions/ Recommendations
(1)	(2)	(3)
1	1.13 1.14	The Committee note that Metal Corporation of India, a public limited company was acquired by the Government of India under the Metal Corporation of India (Acquisition of Undertaking) Act of 1966, and a Tribunal was appointed in November, 1971 to determine the amount of compensation payable to the Corporation because of a disagreement between the Government of India and the Corporation on the amount of Rs. 1.98 crores offered as compensation by the Government of India. Though the Tribunal was required to submit the report within a period of 8 months it was only in April, 1974, after about 3 years, that the Metal Corporation finally filed its claim of Rs. 101.80 crores towards compensation with the result that the date for submission of the report was extended first up to December, 1973 and later up to December, 1975. It has been now further extended to 28th February, 1977. Too long a time has been taken in coming to any final decision in regard to the amount of compensation to be paid.
2	1.15	The Committee feel that when a private enterprise is acquired in public interest it may be more appropriate if the amount payable in such cases is mentioned specifically in the legislation itself particularly in those cases where

(1)	(2)	(3)
		the amount is likely to be huge. The Committee feel that Government should lay down norms for fixing the amount to be paid at the time of take over. The Committee would like the Government to examine the question of paying an amount which may not be more than the book value of the assets less the liabilities of the unit at the time of taking over.
3	2.7	The Committee note that the estimate of the integrated scheme which was originally revised from Rs. 670 lakhs (1960) to Rs. 1263 lakhs in 1964 was after take over by HZL reassessed at Rs. 1664 lakhs in November, 1966 and further revised to Rs. 1896 lakhs in October, 1969. They feel that the revision made in 1966 by HZL could have been complete in all respects if only the Management had been vigilant and taken care to include any new items which were covered later. In the opinion of the Committee this laxity on the part of Management has not only resulted in escalation in cost but also delayed the implementation of the project.
4	2.8	The Committee also feel that while revising the estimates in October, 1969 Government should have critically gone into the reasons for revision or increases under each one of the sub-heads to make sure that such increases|revisions were justified and the items newly included could not have been foreseen earlier. The Committee expect that at least in future the Government would ensure that once the estimates are revised they are realistic and that there would be no further revision.
5	2.11-2.12	The Committee regret to note that although the integrated scheme is stated to have been

(1)	(2)	(3)
		completed as far back as April, 1973, the revised project estimate was approved by Government only in October, 1975 *i.e.* after more than two years of completion of the project. The Committee do not see any justification for the delay of over 2 years in the sanction of revised estimates even after completion of the project. The Committee feel that revised estimate should not serve the purpose of a completion report of the project but should be prepared as soon as excesses are anticipated under any or different heads of the project or when there is a material deviation from the original project estimate so that it may serve as an instrument for financial control and should not be taken up sanctioned after the completion of the project and thus become a *fait accompli.* They recommend that the reasons for delay in approval of the final estimate should be investigated in order to pinpoint lapses, if any, and avoid recurrence in future.
6	2.13	In the opinion of the Committee it is not correct that approval of the revised estimate or closure of the estimate should await the award of Tribunal. Any change in the capital cost on account of the decision of the tribunal should be suitably explained in the final completion report of the project.
7	2.26—2.28	The Committee regret to note that though the Ministry were satisfied about the justification for increase in cost estimates in regard to sinking and lining of shaft and development of mines, they did not sanction the revised estimate but decided in October, 1973, after a lapse of 2 years that the revised estimate would be considered along with the revised project estimates for the integrated scheme. The Committee are informed that the revised estimate for the whole pro-

(1)	(2)	(3)
		ject was sanctioned only in October, 1975, after a further delay of two more years. The Committee feel that Government should not have deferred the approval of estimates/sub-estimates of the work till the consideration of the scheme estimate as a whole.
8	2.31	The Committee feel that since HZL was not unaware of the work already done in regard to sinking of shaft and the nature of work remaining to be completed, it should have been possible for HZL to tie up the organisational arrangements, procurement of materials etc. well in time and fixed a realistic and firm schedule for completion of the work in the contract instead of having a vague stipulation that a time schedule would be prepared from time to time. The Committee regret to note that even after a schedule was prepared it could not be adhered to and there was a delay of 2 years in the completion of the work. The Committee recommend that the reasons for delay in the completion of work should be investigated in order to find out the extent to which each of the factors contributing to delay could have been avoided with proper planning and foresight.
9	2.37	The Committee are surprised to note that although the Ball Mill was installed in September, 1966 to feed the Zinc Smelter at Debari, the smelter was commissioned only in early 1968. The Committee have already commented elsewhere in the Report about the lack of synchronisation of the different activities taken up in connection with the implementation of the Integrated Scheme.
10	2.38	The Committee note that though trial runs of the 500 tonne Ball Mill were completed in September, 1966 it was not commissioned till December, 1967 even after a lapse of one year

(1)	(2)	(3)
		on account of inadequate supply of electric power from the Chambal Project. The Committee are informed that pending determination of final tariff for supply of power no formal contract was entered into with RSEB. The Committee see no reason why a formal commitment for supply of required quantity of power could not have been entered into with RSEB, leaving the rates to be decided by Government/RSEB later so that there was at least an assured supply of the electric power.
11	2.46-2.47	The Committee regret to note that despatch instructions for the equipments for renovation of the existing Ball Mills which were ready for supply as early as October, 1970 were actually given only in December, 1970 resulting in payment of bonus of Rs. 46,000. The Committee are informed that the delay was on account of consideration of the economics of rail *vs.* road transport and ultimately the negotiations for road transport took considerable time. It has been contended that even if the equipment had arrived earlier, payment of bonus would have been attracted according to the terms of the agreement. The Committee see no reason why the comparative economics and feasibility of the rail *vs.* road transport should not have been assessed even before placing order for the equipment required for the renovation of the existing Ball Mills instead of waiting till the equipment was ready. The Committee are not convinced of the reason that even if the equipment had arrived earlier, payment of bonus would have been attracted. The Committee need hardly stress that recurrence of such lapses should be avoided in future with proper planning and foresight.

(1)	(2)	(3)
12	2.58—2.60	The Committee recommend that the entire matter regarding the award of the contract for the 2,000 tonnes Ball Mill and the delay on the part of the Ministry and the Undertaking in taking a final decision about the setting up of the Ball Mill should be thoroughly investigated by an expert committee in order to pinpoint lapses and fix responsibility. The expert committee should also examine whether it could not have been better to launch a short-term scheme for the development of the Mill capacity to 1,000 tonnes in the first instance as was recommended by the Consultant originally in 1961, before the Company was taken over by Government and whether it would not have been advisable to award the contract on the basis of the tenders originally received instead of calling fresh tenders.
13	2.66—2.68	The Committee would like that the further delay caused in the erection of the 200 tonnes Ball Mill due to non-availability of essential items like steel should also be investigated by the expert Committee in order to find out the extent to which delays could have been avoided with proper planning and foresight.
14	2.75-2.76	The Committee recommend that Government should examine the case critically to find out whether the delay in the erection of the Ball Mill could have been avoided and the Committee informed of the results.
15	2.88—2.90	The Committee regret to note that in view of the inability of the mines and the mills to provide the required quantity of concentrates for the zinc smelter, HZL had to import 44702 tonnes of concentrates during 1969-70 to 1972-73 at a total cost of Rs. 5.27 crores.

(1)	(2)	(3)
		Although the Committee agree that one of the serious lacunae in the integrated scheme inherited by the Hindustan Zinc Ltd. from the MCI was the absence of synchronisation of different activities, required efforts for development of the mines with a view to feed the zinc smelter were not initiated in time. The Committee regret to note that even after taking over of the MCI and while modifying and implementing the integrated scheme nothing was done by Hindustan Zinc Limited. to rectify the lacunae and the lack of synchronisation continued till the completion of the scheme mainly due to delays in the development of mining capacity to match the existing smelting capacity.
18	2.91-2.92	The Committee find that the study team of the Bureau of Public Enterprises recommended as far back as in 1969 that the development of mines and mills need to be speeded up and its progress watched and controlled so that it was completed by December, 1971, the target fixed by HZL. The BPE also recommended that planning progressing and monitoring functions to be conducted through PERT. In the meantime certain short term improvements were essential to raise the production of concentrates to the maximum and reduce the dependence on imported concentrates for achieving efficiency of zinc smelter. The Committee are not sure whether the short term measures were put into operation so as to cut down the import of concentrates. The Committee have already commented upon the delay in the development of mining and milling capacity and recommended investigation of the delays on the part of the Management and Ministry at various stages. The Committee would like that responsibility for the huge national loss due to these lapses should be fixed and Committee informed.

(1)	(2)	(3)
17	2.110	The Committee find that the estimated cost of the Tidi Dam entrusted by HZL to the Rajasthan Government for construction had been revised from Rs. 60.42 lakhs in October, 1969 to Rs. 67.42 lakhs in April, 1971 and finally to Rs. 85.07 lakhs in April, 1972 for a height of 1376 ft. MSL. In April, 1972 the State Government further revised the estimate to Rs. 99.69 lakhs for a height of 1,407 ft. MSL. The State Government were asked to stop the work at 1376 ft. MSL and the dam is now being completed by HZL upto a height of 1407 ft. MSL at the estimated cost of Rs. 112.25 lakhs. They would like the Ministry to examine as to how far the revised estimate of Rs. 112.25 was reasonable and why the work could not have been got completed by the State Government was done earlier.
18	2.111	The Committee are surprised to find that while examining the estimate of the project as revised in April, 1972 the CWPC informed in June, 1972 that the dam at full height would generate only 95 per cent availability of 140 million cft. and not 300 million cft. as originally planned by Irrigation Department and there would be a shortfall of 42 million cft. of water by 1976-77 even if the dam is extended to the full height of 1407 ft. MSL. The Committee are not sure whether the detailed project estimate of the dam was scrutinised and the availability of water etc. ensured by the Hindustan Zinc Ltd. before acceptance of estimate was given to the State Government for execution of the work. The Committee would like that the entire matter should be thoroughly investigated with a view to fix responsibility for the lapse.
19	2.112	The Committee also note that out of the total claim of State Government for Rs. 84.25

(1)	(2)	(3)
		lakhs a sum of Rs. 77.13 lakhs has been paid by HZL. The Committee would like to be informed about the settlement of the balance.
20	2.113	The Committee regret to find that though water was being drawn from the dam for the requirements of HZL from 1972-73, the dam was physically handed over only on 31st May, 1975 pending finalisation of the agreements between State Government and HZL. The Committee would like to be informed about the finalisation of the agreement with the State Government and about the terms and conditions of water supply.
21	3.45—3.48	The Committee note that zinc and lead metals worth about Rs. 215 crores had to be imported during the years 1969-70 to 1974-75. The Ministry have stated that "the gestation period of mining/smelting project is long and with their limited expertise in the field coupled with general financial constraints faced during the Fourth Five Year Plan period, the import of zinc/lead could not have been avoided." The Committee do not, however, agree with the views of the Ministry as they feel that if the delays which occurred both on the part of the Ministry and Management in sanctioning and implementing the various schemes had been avoided, the imports could have been substantially reduced, if not eliminated.
22	3.49—3.51 and 3.56—3.58	The Committee recommend that the delays in the processing and implementation of all the 4 projects *viz.*, (i) expansion of Zinc Smelter at Debari (ii) Zinc Smelter at Vishakhapatnam (iii) Zinc Smelter in the private sector at Alwaye & (iv) Lead Smelter at Tundoo should be thoroughly investigated by an expert committee in order to pinpoint lapses and fix responsibility for the huge loss suffered by HZL as a

(1)	(2)	(3)
		result of such delays. The expert Committee should *inter alia* examine the following aspects in depth: (a) The justification for the delays on the part of Government in sanctioning various schemes. (b) the justification for asking experts of M/s. Bipromet of Poland to examine the Debari Project when it was earlier decided to entrust the job to M/s. Krebs of Paris. (c) the justification for processing both the Projects at Vishakhapatnam and Debari together and thereby delaying the work on the Vishakhapatnam Project by 8 months till the receipt of sanction for the Debari Project. (d) the justification for not proceeding with the Project at Vishakhapatnam till the electricity rates with the State Electricity Board were finalised and the extent to which the delay in finalising the agreement could have been avoided. (e) The reasons for delay in the expansion of the Alwaye Zinc Smelter in the private sector. (f) the justification for entrusting the Project Report for the second phase of modernisation of the lead smelter at Tundoo to Engineers India Ltd. The Committee would like the investigations to be completed within six months of the presentation of Report and they informed about the results of such investigations.

(1)	(2)	(3)
23	3.52—3.55	The Committee note that, in January, 1970, the undertaking appointed a Technical Committee under the Chairmanship of Director, National Metallurgical Laboratory, Jamshedpur, to examine the working of the Lead Smelter at Tundoo and recommend its development. The Report of the Technical Committee submitted in January, 1971 was considered by the Board in July, 1971. The Management "did not think much of the report" as it contained "theoretical possibilities" which were not considered "worthwhile". The Committee are surprised to note that the undertaking considered the National Laboratory to be primarily a research organisation "not quite competent" to take up the problems involved in the modernisation of Tundoo Smelter. If that is so, the Committee cannot appreciate the rationale of appointing the Technical Committee under the Chairmanship of the Director of the National Laboratory. The Committee are informed that at the suggestion of the Department of Mines, the Undertaking decided in December, 1971 to entrust the work of preparation of feasibility/project report for the 2nd phase of modernisation of Tundoo Smelter to Engineers India Ltd. (EIL). They are also informed that the report submitted by EIL in May, 1973 after a delay of about 1-1/2 years, contained several gaps technologically and otherwise and it was, therefore, not proceeded with. The Committee cannot appreciate as to why the importance and urgency of engaging competent experts for the development of Tundoo Smelter were not realised right at the beginning and why a period of 4 years from 1970 to 1974 was lost in making experiments with indigenous know-how. The delay in this regard is all the more regrettable when it was well-known that the country was spending about Rs. 10 crores a

(1)	(2)	(3)
		year in foreign exchange during that period on the import of lead to meet the indigenous requirements. The Committee recommend that the Bureau of Public Enterprises should make a case study of the futile steps taken by the Management first in appointing the Technical Committee and the EIL tc recommend measures for the development of Tundoo Smelter and subsequently abandoning their reports on the ground that these were not upto the mark. They would like the BPE to draw lessons from the case study and lay down guidelines for the benefit of all the undertakings.
24	3.64	The Committee find that the Task Force on Non-Ferrous Metals set up in June, 1972 assessed the requirement of zinc and lead by the end of Fifth Five Year Plan as 200,000 tonnes and 118,000 tonnes respectively. It has been stated that the demand for zinc and lead showed a significant drop since 1974. The Ministry/HZL have now assessed the demand to be 115,000 tonnes and 50,000 tonnes respectively. The Committee are not sure if these figures are based on any realistic and scientific re-appraisal of the projected demand. They would, therefore, like that a realistic assessment of the future demand should be made particularly in view of the renewed spurt in industrialisation in the country.
25	3.65	The Committee hope that the two projects in the public sector *viz.*, expansion of the Debari Smelter and zinc smelter at Vishakhapatnam would be completed as per schedule. They also recommend that Government should ensure implementation of the expansion scheme in regard to zinc smelter at Alwaye during the Fifth Five Year Plan so that the entire demand for zinc is met indigenously.

(1)	(2)	(3)
26	3.66—3.68	The Committee recommend that as the gestation period of mining/smelting projects is stated to be long, Government should do planning on a long term basis in the matter of assessment of demand for lead and take early action in creating adequate capacity to meet the demand indigenously so as to avoid dependence on imports as far as possible.
27	3.69	The Committee would like Government to take final decision in regard to the proposal for the construction of another electrolytic zinc smelter having a capacity of 100,000 tonnes in zinc and 50,000 tonnes in lead keeping in view the comparative economics of importing zinc and lead and meeting the requirements indigenously.
28	4.19—4.21	The Committee regret to note that there have been considerable delays in finalising the development schemes in regard to Balaria, Zawaramala-Baroi and Rajpur-Dariba mines. They feel that project reports in respect of all the three mines have been and are being processed at a rather tardy pace. They recommend that the Government/Undertaking should review the procedures and streamline them so as to ensure that not only are feasibility/project reports prepared expeditiously but these are also finalised without delay. The Commitee are informed that the Debari Smelter for the production of 45,000 tonnes of zinc as envisaged under the expansion plan is based on indigenous zinc concentrates while the Alwaye and Vizag Smelters for a production programme of 50,000 tonnes of zinc are based on imported concentrates. The Ministry have stated that "as a prudent policy, the smelting capacity should be ahead of the ore/concentrates capacities even though for a period, the difference in the capacities may have to be utilised by smelting

(1)	(2)	(3)
		imported concentrates......" The Committee, however, feel that it should be possible that all the three stages, *viz.*, mining, milling and smelting should be synchronised so that there is no underutilisation of any of the capacities at any point of time. The Committee are led to the conclusion that even when all these projects are implemented, concentrates for meeting the demand of the existing three smelters (which will have a rated capacity of 95,000 tonnes of zinc) will still have to be imported. The Committee cannot over emphasize the need for minimising dependence on imports of concentrates. They stress that Government/Undertaking should not spare any efforts to fully commission Balaria Mine according to schedule and finalise and implement the development schemes of Zawarawala-Baroi and Rajpura-Dariba mines without delay and ensure that these mines reach the rated capacity in the shortest time to feed the three smelters with zinc concentrates to produce upto 90,000 tonnes of zinc, as expected by the Undertaking, thus reducing imports of zinc concentrates to that extent.
29	4.22-4.23	The Committee regret to note that non-ferrous metal deposits got very little attention in the past though the process of investigation and discovery of new deposits is now stated to be satisfactory. In view of the gap between the indigenous availability of zinc concentrates and the requirements of the existing three smelters, which may widen when smelting capacity is further expanded, the Committee feel that there is an imperative need to intensify search for additional non-ferrous metal deposits in the country. They would like the Government to draw up a plan, in consultation with the Geological Survey of India, HEL and the State Governments concern-

(1)	(2)	(3)
		ed, to accelerate the pace of work of investigation of non-ferrous deposits in the country and establish a meaningful coordination among all these agencies so as to ensure that all of them work according to a time-bound plan to achieve self-reliance in this field.
30	4.23	The Committee would also like Government to examine the feasibility of bringing the Exploration & Development of zinc lead mines in the country under the control of a single organisation like HZL which has developed expertise in the field.
31	4.41—4.45	The Committee regret to note that the contract for Balaria-Shaft sinking and Machine Balaria Interconnecting Driveage was awarded to M/s. Cementation Co. Ltd. for Rs. 46 lakhs with the approval of Government on negotiated basis without invitation of tenders even before a detailed estimate for the work was prepared and aproved. Though the contract envisaged that a programme for completion of work would be appended to it, and that a performance bond for Rs. 4.69 lakhs would be furnished by the contractor within 15 days of signing the contract, neither was any such programme for completion of work drawn up and attached to the contract nor was the performance bond obtained from the contractor. The Committee are surprised to note that even the estimated quantities of materials to be supplied to contractor were not worked out though rates for supplies were stipulated in the contract with the result that there was no yardstick against which actual consumption of materials could be watched. The Committee are informed that detailed estimates were available. The Committee see no reason why if, as stated, the estimates were there, they were not available for scrutiny by Audit.

(1)	(2)	(3)
		The Commitee are informed that due to non-arrival of equipment in time, shortage of explosives, heavy power cuts and unprecedented rains, no programme could be drawn up. In the opinion of the Committee, these reasons are not convincing. The Committee are of the view that a definite programme for completion should have been prepared and stipulated in the contract before it was signed. In regard to performance bond, while on the one hand the management stated in April, 1975 that a performance bond for such work was not necessary, on the other hand it was stated that performance guarantee given by the contractor which was valid up to 30-6-72 was returned to the contractor and a fresh guarantee was not insisted upon in view of the reportedly satisfactory progress and certain old claims of contractor pending with HZL. The Committee are at a loss to understand the conflicting statements made by the Management.
		The Committee recommend that the entire matter regarding the award of the contract to M/s. Cementation and Company (i) without invitation of tenders, (ii) without detailed estimate for the work being prepared and approved, (iii) not enforcing the condition regarding performance bond, (iv) not stipulating any detailed programme of completion of work (v) not fixing suitable norms for the consumption of materials, and also delay in supply of services and materials to the contractor and justification for the extra expenditure of Rs. 3 lakhs should be investigated. The Committee would like to be infomed of the result of the investigation.
32	4.50-451	The Committee regret to observe that because of the delay in production from the mine the company had to incur extra expenditure in the procurement of rock phosphate.

(1)	(2)	(3)
33	5.33—5.35	The Committee find that apart from the delay in the development of the Central Mechia Mine due to delay in the erection of the 2000 tonnes per day mill, the system of control in vogue on mining operations was deficient in as much as (i) year-wise physical targets for the exploratory and development work and the actual achievement thereagainst were not reported to the Board of Directors till January, 1975. (ii) in the absence of proper documentation, the mine development activities were not indicated in each year in the form of additions to different categories of reserves of ore till 1973-74 Periodical self-appraisal of exploratory and development work indicating the additions to the ore reserve was also not reported to the Board of Directors. The Committee fail to understand as to how an effective control could be exercised by the Ministry on the working of the Corporation in the absence of such vital information. The Committee feel that fixing of year-wise targets for different stages of mining operations and the periodical self-appraisal of the results achieved are the basic functions of the Management. They stress that the Management should ensure proper documentation and maintenance of records, and keep the Board of Directors regularly informed about the self-assessment of the progress of exploratory and development work to enable it to review the achievements *vis-a-vis* targets and advise remedial action.
34	5.36	The Committee recommend that in the light of the past experience the Ministry should evolve a system of keeping themselves constantly in touch with the progress made by the Management in various fields so as to take prompt remedial measures, whenever serious lapses/deficiencies come to their notice.

(1)	(2)	(3)
35	5.54	The Committee find that since the commissioning of the new Ball Mill in 1972-73, the milling capacity has been in excess of the ore available. The Undertaking has stated that "as a matter of policy the milling capacity should be more than the mining capacity" and the extra milling capacity is being progressively utilised. The Committee are not sure as to what should be the maximum gap between the milling capacity and mine production capacity and what should be the optimum time during which the development of mine production should catch up with the milling capacity. They suggest that these aspects of mining and milling capacities may be examined in depth and an integrated time chart worked out as an aid to the Management in co-ordinating the commencement and completion of the various units of any future smelter complex so as to ensure that the units come up in proper order and the time lag between the completion of the various units is the barest minimum to avoid any loss on account of idle capacity for long period. They would, however, like to reiterate that the ideal policy should be to synchronise, as far as possible, the development of mines and the installation and commissioning of the milling and smelting capacities and they need hardly stress that undertaking should strive to achieve this ideal in the future projects.
36	5.55—5.57	The Committee are informed that shortage of water and maintenance of machines and shortage of copper sulphate have been responsible for the shortfall in the quantity of ore treated in the Mills The Committee feel that with proper planning and arrangement of equipments and maintaining an adequate buffer stock of copper sulphate, such difficulties could have been overcome and shortfall in production avoided. The Com-

(1)	(2)	(3)
		mittee recommend that the Management should lay down the maintenance schedules to service the machines and ensure that there are observed regularly. The steps taken in pursuance of the maintenance schedules should be periodically reviewed by the Board and remedial action taken where necessary. The Committee would also recommend that the inventory control should be streamlined and demand of various reagents and other things necessary to run the mills should be worked out well in advance and suitable arrangements made for their timely supply to avoid any dislocation in the production programmes. The Committee note that power interruptions have also been responsible for the decline in the recovery efficiency of the mills and the under-utilisation of milling capacity. The Committee feel that in view of the all round improvement in the power supply position, it should not now be difficult for the Undertaking to make the State Electricity Board agree to meet the power requirements of the smelter complex on a long term and firm basis. They would like the Ministry/Undertaking to take-up the matter with the State authorities at high level and resolve the problem of power supply on a priority basis.
37	5.58	. The Committee are informed that in view of the erratic behaviour of the ore in terms of metal content, which on occasions were reaching uneconomic levels, the Management were considering the possibility of introducing an on-line computerised analyser so that instanteneous adjustments in fuel and reagents could be made. The Committee would like that cost benefit analysis of the introduction of computerise analyser should be worked out before taking a final decision in the matter and the Committee informed of the results.

(1)	(2)	(3)
38	5.73 5.74	The Committee regret to note that lack of appropriate maintenance organisation, besides acting as a constraint on production, caused damage to certain parts of the zinc smelter, particularly the Roaster and Sulphuric Acid section and eagerness to utilise full capacity of the plant prematurely resulted in "flogging" of the plant causing harm to equipment life. They are informed that the undertaking "was handicapped for want of experience as even at national level, there was no experience with a process of this type. It had no experienced personnel on roll either in operation or in maintenance. The Committee cannot understand why the question of arranging training for the technical personnel to operate and maintain the plant, which is of basic importance, was not considered by the Management contemporneously with the erection of the plant and why admittedly inexperienced personnel was allowed to overreach themselves and mishandle the critical sections of the plant. They view it as a patent instance of lack of foresight on the part of Management and over-ambition on the part of technical personnel. The Committee would like the Government to investigate whether training of personnel was not contemplated under the Agreement with technical/foreign collaborators and why the technical personnel were not got trained by the collaborators in the course of installation of the plant. They would like responsibility for these lapses and the damages done to the plant as a result of inept handling by inexperienced personnel to be fixed and the Committee informed of the action taken in the matter.
39	5.75	The Committee would like to be informed of the positive measures taken for training of the personnel and for maintenance and operation of the plant to prevent damage and avoid loss in production.

(1)	(2)	(3)
40	5.76 5.78	The Committee are informed that the main impediment in attaining a production higher than 13,500 tonnes even in 1974-75 (as against a capacity of 18,000 tonnes) was the limited capacity of the Roaster which is stated to be suffering from design defects. The Committee cannot understand as to how the certificate of performance guarantee in respect of the Roaster could be given by the officers of the undertaking without operating the Roaster at full pressure for a considerable period. They cannot but deprecate the undue haste and lack of elementary caution shown by the officers of the undertaking in this regard which has resulted in the undertaking being saddled with a Roaster which is defective in design and consequently deficient in capacity. The Committee would like this matter to be enquired into with a view to fixing responsibility and learning lessons. The Committee feel that guarantee tests of plant and equipment are meaningless unless they are conducted under normal conditions with full operation pressure and certificates of performance guarantee should not be issued unless the Management are thoroughly satisfied from all aspects during actual trials that the plants etc. are capable of working to full capacity. They would like the Bureau of Public Enterprises to issue standing guidelines in this regard for the benefit of all public undertakings.
41	5.79	The Committee are informed that the Study Team (1969) of the Bureau of Public Enterprises, which also certified that Roaster was capable of attaining a production level higher than the rated capacity, did not include any metallurgical expert and the team "was not sent as an Enquiry Committee as such to enquire into the Roaster but just like an audit team." The Committee cannot understand why such a Study Team chose to comment on the performance of the Roaster

(1)	(2)	(3)
		when it neither included an expert nor was it deputed for the purpose.
42	5.80	It is expected that the existing Roaster should be able to reach over 90 per cent capacity utilisation if stability in power supply can be ensured. The marginal shortfall is proposed to be made good by providing a marginal extra capacity, in the new Roaster which is under erection for expanded smelter and is expected to be commissioned in 1976-77. The Committee hope that with the improvement in power position, as already pointed out, it would be possible for the undertaking to operate the Roaster to over 90 per cent of capacity. They also hope that the lessons learnt from the installation, design deficiencies and guarantee trials of the existing Roaster would be kept in view while erecting, testing and commissioning the new Roaster for the expanded smelter.
43	5.99	The Committee regret to learn that it has not been possible for the Undertaking to derive any benefit from the Report of M/s. Chemical and Metallurgical Design Company (P) Ltd. which was appointed to (i) study the operations of the zinc plant and make recommendations for improving concentrates and cadmium recovery from the roasted concentrates and (ii) carry out laboratory investigations to develop suitable scheme to recover additional zinc from the moore cake (leached residue) as the report was not technically suitable for implementation, with the result that the entire amount of Rs. 1.25 lakhs paid to the firm has proved to be infructuous. The Committee are not convinced of the argument advanced by the Management that since no other firm approached the undertaking claiming expertise in hydrometallurgy, HZL presumed that M/s. Chemical and Metallurgical Design Company were the only Indian firm claiming expertise.

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		The Committee feel that even though the private company was on the approved list of the Planning Commission to render consultancy services and was introduced by the Ministry in 1970 for reviewing the project report for Vizag Zinc Smelter, the Management should have evaluated their capability and experience with special reference to the particular problems in view and should not have presumed that the Company was capable of dealing with all the matters relating to non-ferrous metals. They feel that the Management should have acted with greater caution and prudence and should not have accepted the claim of M/s. Chemical and Metallurgical Design Company without satisfying themselves about their professional standing and calibre. The Committee are surprised at the argument of the undertaking that "it is better to invest in them and prove that they cannot do it." The Committee would like Government to analyse the various factors which led to the wrong choice of consultants in this case and learn lessons for the future.
44	5.100 5.103	The Committee suggest that the Ministry/Undertaking should analyse the reasons for the fall in zinc recovery efficiency in consultation with competent and experienced experts and research bodies in the field with a view to devising ways and means of improving the recovery efficiency to the maximum level possible in the prevailing circumstances. The Committee note that after spending over 1.5 lakhs besides suffering loss of recovery, the Undertaking could now to some extent improve the efficiency. The Committee while commending the work of the Undertaking fail to understand why they could not have remedied the situation earlier and thereby avoided a recurring loss.

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45	5.104 5.106	The Committee recommend that the Ministry/Undertaking should examine the pros and cons of deferring the schemes to recover zinc/lead from Debari sludge and Tundoo slag till 1980 and 1979 respectively and take a decision in the matter, in consultation with experts, in the best interest of the undertaking.
46	5.112 5.113	The Committee recommend that in view of the introduction of mechanical handling system and improvement in Moore Filter Unit, the standard of recovery efficiency of cadmium should be worked out afresh on a realistic and scientific basis and the reasons for shortfall in actual recovery *visa-a-vis* the standard recovery analysed and suitable remedial steps taken promptly to ensure that the high level efficiency is maintained.
47	5.130 5.132	The Committee note that one of the Directors of the Hindustan Zinc Ltd. who made a detailed and intensive study of the working of the melting furnace which had suffered break-downs in 1969, 1971 and 1973 and related problems observed in his report (May 1973) that "although it would be difficult to pinpoint the exact cause or causes of the break downs in 1971 and 1973 it is most likely that these failures were caused by running the furnace without specified demineralised water cooling system." The Committee regret to note that though the enquiry report of the Director was given by the Ministry to the DGTD no action has been taken by the Ministry/Undertaking in the light of the aforesaid report. The Committee are informed that the DGTD could not conduct the enquiries because of the highly specialised nature of the work. The Committee fail to understand why the report could not have been considered by the Management/Board and suitable action initiated. The Committee would also like to be informed of the action taken on the recommendations given in

(1)	(2)	(3)
		the Report. The Committee are informed that a "top engineer of Demag of Germany who has specialised in furnace has since looked into the matter. The Committee recommend that the Ministry/Undertaking should without delay examine in depth the question of break-down of the old furnace in the light of the findings in the Director's Report and the suggestions which might have been made by the German Engineer and take all possible measures to rectify the defects of the furnace improve the standard of supervision and reorganise and tone up the management at all levels so as to ensure that not only the furnace is re-started at the earliest but is also maintained in good working condition.
48	5.133	The Committee find that the new Melting Furnace purchased from M/s. Demag of West Germany at a cost of Rs. 14.79 lakhs was commissioned in May, 1974. They are, however, surprised to note that the furnace was accepted without getting any indication from the German Suppliers about the expected recovery efficiency. The Committee would like to be informed about the reasons for not getting any such guarantee from the foreign supplier. They would like the Ministry/Undertaking to determine, in consultation with the suppliers, the standard efficiency of the furnace with and without re-treatment of metallic dross so that the actual results can be compared with standards and remedial measures if necessary, can be taken concurrently to avoid loss in production.
49	5.134	The Committee are informed that at the end of March, 1975, the stock of metallic dross with the Undertaking was approximately 941 mt. and in addition 1121 tonnes of zinc dross (exide) was lying with it. The Committee would like to know what steps are proposed to be taken by the Undertaking to treat the metallic dross and recover zinc from it.

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50	5.137 5.139	The Committee are surprised to note that although the Board of Directors approved the installation of new zinc sulphate plant in January, 1972 and the Plant was expected to be commissioned by the second half of 1972, orders for the supply of Crystalliser was placed with M/s. Desmet of Bombay only in November, 1973, with delivery in May, 1974.
		The Committee find that even after placing the order it was only in May, 1974 that an engineer was deputed to chase the progress of work and since no progress was made another agreement was entered into introducing a penalty clause and fixing 30th July, 1974 as the date for completion of supply.
		The Committee find that as a result of delay in the supply of equipment by the firm the new zinc sulphate plant was commissioned only in February, 1975.
		The Committee fail to understand as to why the agreement originally entered into could not provide for suitable penalties for delays in supply or non-fulfilment of contractual obligations. The Committee recommend that delay in placing the order and for the failure to provide for the penalty clause in agreement should be investigated in order to fix responsibility.
51	5.140 5.141	The Committee further note that the Board of Directors approved in January, 1972 the modification of the existing zinc sulphate plant to be converted into copper sulphate plant and this work was also expected to be completed by the second half of 1972. But as the renovation of the old zinc sulphate plant could only be taken up after the commissioning of the new zinc sulphate plant, this work therefore also got delayed.

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		The Committee would like to be informed about the action taken by the Management against the firm for the delay in the supply of equipment of new zinc sulphate plant.
52	5.149 5.150	The Committee find that in the absence of buffer stock, the Lead Smelter at Tundoo was without concentrates for long periods during 1965-66 to 1973-74 and therefore had to be closed down from time to time. The Committee are led to the conclusion that there is lack of proper coordination between mines and the smelter which is regrettable. They recommend that the Management should investigate the reasons for uneven flow of concentrates from mines to the smelter and take effective steps to place this matter on a sound footing so as to ensure that the smelter does not have to close down for want of concentrates. The Committee would like the Government also to examine whether the existing storage capacity is adequate in view of the improved capacity of the smelter.
53	5.155	The Committee are informed that the 2nd phase expansion of the Lead smelter which was expected to be completed by March, 1976, has taken care to minimise the process loss and to aim at recovery efficiency of about 90 per cent which is comparable to international standard. The Committee would like to be informed of the conclusive action taken to improve the recovery efficiency.
54	5.160	The Committee find that there has been loss in transit in the quantities of concentrates despatched from Zawar mines and received at Tundoo. The total loss in value during 1967-68 to 1974-75 amounted to about Rs. 14 lakhs. The Committee regret to note that in spite of the huge loss every year the matter was not brought to the notice of the Board. The Committee fail

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		to understand as to, why the management have not gone into the reasons for the loss. The Committee are surprised to note that there were no weighing facilities of railway wagons either at Udaipur or at Tundoo siding and the quantity despatched indicated the R/R weight only which was issued on "said to contain" basis. They feel that there should have been proper weighing facilities at the stages of production, despatch and receipt so that the exact losses could have been identified.
55	5.161	The Committee are informed that in order to minimise transit losses the gunny bags were replaced by improved high density polythene bags in early 1973 and a system of standardisation of weight of these bags has also been introduced. It has also been stated that clear RRs' are now being issued by the Railways. As a result of these measures transit losses have been reduced from 2 per cent in 1973-74 to 0.59 per cent during 1974-75. The Committee need hardly stress that the new system should be kept under constant review in order to take suitable measures whenever discrepancies are noticed.
56	5.166 5.167	The Committee need hardly point out that it is very essential for the undertaking to follow procedures which reveal the efficiency of the silver recovery system accurately and do not produce admittedly unrealistic and "fallacious" figures and thus keep the Management in the dark about the reall efficiency of the plant. They recommend that the lacunae in the existing procedures for determining the exact quantities of input and recovery of silver should be thoroughly investigated and a suitable method evolved in consultation with research organisations in the country or if necessary in consultation with foreign experts and adopted without delay.

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57	5.170	The Committee fail to understand as to why final norms of consumption of various fuel and fluxes per tonne of refined lead could not be fixed during all these years. The Committee would like that the norms should now be fixed on a scientific basis and the actual consumption *vis-a-vis* the norms should be kept under constant watch and remedial measures taken wherever necessary.
58	5.174	It has been stated that the mining equipment which was ordered by MCI and was lying at Bombay Port for 2/3 years, when brought to the mines was found in damage/rusted and corroded condition. The Committee are informed that a total claim of Rs. 9,23,150 was lodged with the Railways for shortages as well as damages as a result of fire to one of the wagons. It has been stated that the Railway authorities rejected the fire loss claim of Rs. 6,05,822 on the ground that "it was an act of God". The Committee are not sure whether the equipment was insured against fire and whether the intervention of the administrative Ministry was sought to settle claims with the Ministry of Railways. They feel that in view of the huge claim involved the matter should have been vigorously pursued at the level of the Ministry. The Committee recommend that the matter should be investigated with a view to pinpoint lapses and learn lessons for the future.
59	5.177	The Committee find that fourteen floatation cells were purchased by the MCI at a cost of Rs. 1.50 lakhs for recovering pyrites in the ore. These remained unutilised till December, 1973. It has been stated that since the pyrite content in ore was insufficient and there was no suitable market for Pyrite, these were not used for the purpose. The Committee would like to be informed if the matter regarding sale of pyrites was taken up with Pyrities and Phosphates and Chemicals Ltd. before coming to the conclusion that there was no market for pyrites.

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60	5.181	The Committee would like that the reasons for abnormal loss of working hours in the various plants of the zinc smelter should be analysed in depth with a view to take suitable remedial measures.
61	5.182	The Committee find that one of the reasons for idle hours in the super phosphate was the shortage of raw materials. They see no reason for not maintaining adequate buffer-stock of raw materials. The Committee hardly stress that suitable steps should now be taken to procure raw materials well in advance in order to ensure maximum utilisation of the plant.
62	5.183	The Committee are informed that shortfall in Roaster utilisation adversely affected the output of the Leaching and Purification Plant and Electrolysis Plant. They have already recommended that effective steps should be taken to ensure utilisation of the entire available capacity of the Roaster.
63	5.186 5.187	The Committee find that the percentage of idle hours to total hours in the Lead Smelter varied between 8.68 per cent to 26.85 per cent in the Sintering Plant, between 8.6 per cent to 55.92 per cent in the Blast Furnace and between 0.6 per cent to 37.43 per cent in the Lead Refinery. The Committee are informed that "Tundoo Smelter is a labour intensive plant" and "there are no machine worth the name in respect of which such idle hours record need be available. It has been further stated that "with progressive mechanisation connected with second phase expansion, this system will be introduced along with introduction of machinery." The Committee expect that with the completion of the second phase of expansion the system of analysing the reasons for idleness of machinery will be introduced on a scientific basis.

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64	6.9	The Committee are surprised to find that Hindustan Zinc Ltd., had not worked out the mining output per man shift (OMS). The overall OMS has, however, been worked out. But the overall OMS figures are not indicative of the productivity precisely as no distinction has been made between the men employed on developmental works and those employed on production. As the break-up of the manpower between exploitation and development was always furnished by the Mines Manager for the purpose of booking the expenditure to the appropriate capital and revenue heads, the Committee see no reason why it was not possible for the Management to calculate OMS with reference to the men employed on ore production alone. The Committee fail to understand as to how proper control was exercised by the Ministry/Management in the absence of accurate Mine output per man shift. It is only now that the Ministry have issued instructions to HZL to work out the accurate mine output per man shift, overall output per man shift and the development productivity for each of the mines in operation with a view to continuously maintain improvement in these areas. The Committee hope that at least now the management would follow these instructions in letter and spirit.
65	6.10	The Committee also recommend that the reasons for shortfall in the actual OMS, if any, should be analysed so as to take remedial measures in order to improve productivity and thereby increase production.
66	6.29	The Committee do not appreciate the appointment of IAMR for evaluation of staff standards in view of the fact that they are not reported to have expertise.

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67	6.30	The Committee note that while according to the Audit, the strength recommended by M/s. IBCON was 552, the Management have stated that M/s. IBCON recommended a strength of 581. The Committee would like the Ministry to look into the matter and reconcile the position to avoid any confusion on this score.
68	6.30 6.33	The Committee regret to note that, as admitted by the Ministry the strength of the officers, staff and labour force grew up due to *ad hoc* additions from time to time after take over of the company by Government and there was no scientific analysis of job requirements before filling up the various posts in earlier years. It is all the more regrettable that even after two experts organisations have carried out detailed scientific analysis of the manpower requirements of the undertaking, the picture is still far from clear. The Committee need hardly stress that the employment of staff in excess of requirements not only adds to the wage bills but also results in low productivity, high cost of production and administrative and human problems. They recommend that the optimum staff strength for various jobs in mines and smelter should be determined without any further loss of time in the light of the recommendations of M/s. IBCON and on the basis of scientific study of any subsequent developments and a concrete scheme to redeploy the surplus staff in the new units at Zawar or Debari or elsewhere drawn up and implemented according to a time-bound programme till every surplus hand is employed on productive work. They would like to be informed of the concrete steps taken in this regard. The Committee further recommend that after optimum strength is fixed for various units, no

(1)	(2)	(3)
		addition to staff strength should be made without a critical examination of the desirability and necessity of such additions.
69	6.34	The Committee are concerned to note that the absenteeism of workers in the smelter complex has assumed serious proportions. In 1975, for instance, the percentage of absenteeism ranged from 11 to 22 per cent. The Committee cannot over-emphasize the need for strict discipline and seriousness among working force and urge that the malady of absenteeism should be dealt with firmly and eradicated in the interests of achieving higher production at economic cost in the larger national interest.
70	7.29 7.33	The Committee note that as the then existing costing and information system was considered inadequate to meet the fast growing needs of the undertaking, the Administrative Staff College of India was requested in July, 1972 to make a survey and report on the methods of streamlining and modernising the existing system. The report of the Administrative Staff College was received by the undertaking in September, 1973. The Committee regret to note that while the Administrative Staff College recommended that integrated accounts and cost code be developed for analysis of relevant cost and operations, the undertaking is not following the integrated system of accounts and instead financial accounts and cost accounts are separately compiled. The Committee see no reason why an integrated system cannot be followed as in their opinion it facilitates testing the accuracy of cost data and is more scientific. The Committee would like the Ministry to critically examine the costing system actually introduced in the undertaking *vis-a-vis* the recom-

(1)	(2)	(3)
		mendations made by the Administrative Staff College and inform the Committee as to whether the system introduced by the Management is adequate to meet the fast growing need of the undertaking and keep the costs under effective control and whether it had proved useful to the Management to locate areas of weakness and effect economies where the costs were found higher than the norms.
71	7.34 7.35	The Committee are not convinced by the reasons advanced by the Management for not placing the cost system introduced in the company before the Board of Directors. As the Board of Directors is responsible for the all round efficient working of the Undertaking, the Committee see no reason why these matters should not have been placed before the Board so that Board may examine the effectiveness and utility of the various methods and procedures evolved and introduced in this regard by the Management. They would like this to be done without any further delay and the Committee informed of the reactions of the Board in this regard.
72	7.36	The Committee recommend that the norms for consumption of materials should be scientifically fixed based on appropriate data and approved by the Board. The Board should also critically review the variance from the norms with a view to suggesting suitable remedial measures for effecting economies where necessary. The norms should be kept under constant and continuous review by Management and results brought to the notice of the Board from time to time.
73	7.53	The Committee note that there has been a gradual increase in the cost of mining of ore, production of concentrates, zinc ingots and refined lead except in the case of zinc ingots during 1974-75 when the cost was less than that in the

(1)	(2)	(3)
		previous year and in 1969-70 and 1970-71. Though study team of the Bureau of Public Enterprises had observed as far back as 1969 that the cost of raising and milling the ore was *prima-facie* high and it was necessary for the HZL to carry out a special and detailed study of its mining costs so as to bring it down as early as possible, the Committee are surprised to find that no such study has been carried out and the Management had felt that the observation of the Study Team was somewhat general in nature and the increase in cost had also been on account of the fall in the metal content of the ore. The Committee cannot understand as to how without making any study, the Management came to the conclusion that increase in cost was mainly due to fall in the metal content of the ore.
74	7.54	It has been stated that norms of cost of production have been prepared beginning with the quarter July—September, 1973 and submitted to the Board and the Government. The Committee would like to know the outcome of the studies into the norms of cost of production reported to have been made for the quarter July—September, 1973 and action taken in pursuance of the studies to control cost of production.
75	7.54	The Committee would also like to be informed of the steps taken to tone up the working of the Finance Wing of the Undertaking so as to make it effective and dynamic.
76	7.55	The Committee need hardly point out that the Management have a special responsibility to keep a close watch on the cost of production. They recommend that the question of cost of production should be a standing item on the agenda of the Board meetings to enable the Board to review the position critically, identify

(1)	(2)	(3)
		the areas where economies can be effected and watch the results of the remedial measures taken in this regard.
77	8.17 8.20	The Committee regret to observe that till March, 1973 the HZL was made to sell zinc produced by it at a price which was not only unremunerative but also lower than market price and also lower than MMTC's price for imported zinc and thus suffer loss in the process. The Committee would like the Government to review the pricing policy followed till March, 1973 and draw lessons for their future guidance.
78	8.21 8.22	The Committee find that during the period upto March, 1973, when the selling price of zinc produced by HZL was generally lower than the MMTC's price for imported zinc, more quantities of zinc produced by HZL were sold to private parties than to Government Departments/Public Undertakings. The Committee are not sure as to what extent the demands of public undertakings as compared to those of private units were met from indigenously produced zinc. They are informed by the Ministry that allocation of indigenous zinc to public sector units exclusively would have led to the allegations regarding discrimination in supply of raw materials to the industrial units in the public and private sectors. As the Public Undertakings, unlike the private units, have to keep their social obligations in view, while fixing the sale prices of their end products, the Committee feel that in allocating the cheaper zinc to priority units, the demands of Public Undertakings deserved as far as possible, to be given weightage.
79	8.39 8.44	The Committee note that prior to January, 1969 silver was being disposed of through Metal

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		Distributors Limited, Calcutta on payment of a commission of 1 per cent of the Sales price plus brokerage. From January, 1969 it was being sold to Hindustan Photo Films Manufacturing Company Ltd., on the basis of closing prices ruling in Calcutta Bullion Market on the date of actual despatch. After the termination of the agreement with M/s. Metal Distributors with effect from March, 1967 the Board directed the Management to make permanent arrangement for sale of silver in consultation with the Reserve Bank of India and to public undertakings like Hindustan Photo Films. A agreement for sale of the entire production of silver to Hindustan Photo Films Manufacturing Co. Ltd., was finalised in December, 1968 although the Board of Directors permitted the Management to sell 1800 kgs. of silver through Metal Distributors Ltd., when the agreement with Metal Distributors was terminated with effect from March, 1967 the Committee regret to find that the HZL sold 6,871 kgs. during April, 1967 to February, 1969 without obtaining permission of the Board and paid a sum of Rs. 30,525 as commission. The Committee are surprised to find that out of 30 deals put through M|s. Metal Distributors Ltd., between April, 1967 and February, 1969, as many as 22 deals were made at the rates which were lower than the bullion market rates on the relevant date and the overall difference between bullion rates and the actual rates at which the silver was sold was Rs. 50,000. The Committee are not convinced of the reasons furnished by the chairman, HZL in this regard. They would like the Ministry to enquire into the deals put through the private selling agents (M/s. Metal Distributors Ltd.) and determine whether, and if so, to what extent the loss of Rs. 50,000 suffered by the undertaking could have

(1)	(2)	(3)
		been avoided and inform the Committee about the outcome of the enquiry.
80	8.52	The Committee fail to understand as to why an agreement with M/s. Udaipur Chemical Industries for the sale of sulphuric Acid should have been entered into for such a long period (15 years) and that too stipulating price on the basis of the cost of imported sulphur. They would like Government to examine this aspect so as to evolve suitable guidelines for the future.
81	8.63 8.64	The Committee regret to note that Hindustan Zinc Ltd. was not in a position to sell its entire production of zinc which itself was much less than the rated capacity of the smelter with result, the closing stock gradually increased from 653 tonnes in 1968-69 to 5,596 tonnes in 1971-72 involving blocking of funds to the extent of Rs. 228.88 lakhs. The Committee need hardly point out that the distribution policy should be kept under constant review and adapted from time to time to suit the market conditions so as to ensure that there is no undue accumulation of unsold stocks of zinc with the undertaking and no blocking up of the capital.
82	8.68	The Committee find that the unsold stock of cadmium was 22.3 tonnes, 23.8 tonnes and 47 tonnes at the end of 1972-73, 1973-74 and 1974-75 respectively as against 6.7 tonnes at the end of 1971-72. They are informed that one of the main reasons responsible for the lack of demand was heavy importation of the metal and its alloys in 1971-72 and 1972-73 as a result of which large stocks continued to float in the market thereby depressing demand for indigenous products. The Committee cannot but deprecate the lack of proper coordination between the Import Authority and the administrative Ministry concerned with the Hindustan Zinc Ltd. and expect that imports

(1)	(2)	(3)
		would not be allowed in future at the expense of the indigenous production.
83	8.69	The Committee are informed that in order to export the excess stocks due to the continued lack of demand for this metal within the country, Hindustan Zinc Ltd. has approached the Ministry for an export subsidy as the international prices were lower than even the cost of production of this metal, the Committee would like to be informed of the strategy evolved to dispose of the accumulated stock and current production of cadmium at economic prices.
84	8.70	They would, however, like the undertaking to bear in mind that ultimate solution to the problem is cutting the cost of production so as to be able to sell cadmium in international markets at competitive prices without any subsidy. They would therefore stress that the undertaking should searchingly go into the various aspects and stages of production, locate areas where economies are possible and take positive measures to effect economies.
85	8.73 8.74	The Committee find that there has been unduly large accumulation of stocks of super phosphate—a fertilizer produced by HZL as a by-product. The Committee suggest that the Ministry/Undertaking should in consultation with the Ministries of Chemical and Agriculture and the public sector undertakings engaged in the production of fertilizers, critically review the quantity and quality of the fertiliser (super phosphate) being produced by HZL *vis-a-vis* the demand for fertilisers in the regions/States served by the undertaking, and evolve a suitable production pattern, if necessary by introducing diversification or a new product mix so as, to ensure that whatever is produced by the undertaking finds ready market in the country.

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86	8.82	The Committee are surprised to note that in the course of half-year April—September, 1973 allocation letters for a quantity of 18,000 tonnes of zinc cathedes were issued by DCSSI/State Directors of Industries against which only 513 tonnes could be actually delivered by HZL. The Committee are led to the conclusion that there was no co-ordination between the zinc allocation organisations and the producers of zinc *viz.* Hindustan Zinc Ltd. They hope that adequate measures would be taken to avoid such situations in future which only cause a lot of inconvenience to the consumers.
87	8.90 8.91	The Committee note that in April, 1968, the undertaking entered into an agreement with the Director General of Supplies and Disposals for the supply of 2485 tonnes of pig lead to the Defence Department to the rate of Rs. 3,000 per tonne (inclusive of excise duty of Rs. 500 per tonne). The agreement did not contain the price variation clause. The Committee would like the Ministry/Undertaking to go into the general question of quoting prices to Government and non-Government organisations in the light of the past experience and evolve guiidelines which should be followed by them in this regard. They feel that the question of including price variation clause in the agreement should be carefully considered with reference to market conditions prevailing at the time and decision taken on merits of each case in the large interest of the undertaking.
88	8.94	The Committee find that as on 28th February, 1969 HZL had a stock of 16,753 tonnes (loose 14-136 tonnes and bagged 2,617 tonnes) of superphosphate. As on 10th April, 1969 HZL sold besides bagged stock 2,541 tonnes of loose stock without charging excise duty on the basis of the

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		understanding given to them by the Excise Department that "the stock of fertilizers at midnight of 28th February, 1968/1st March, 1969 on a fully manufactured condition will not be dutiable." The Deputy Collector of Central Excise, however, held that excise duty on loose stock (amounting to Rs. 0.80 lakhs) was leviable. The Committee would like the Ministry to take up the matter with the Excise Department in order to clarify the position.
89	9.7	The Committee find from the Audit Report that a test check of 44 purchase orders for amounts exceeding Rs. 50,000 each placed during 1966-67 to 1970-71 for a total value of over Rs. 74 lakhs revealed that in 42 cases involving over Rs. 71 lakhs, open tenders were not invited and the purchases were made on limited tenders. The Chairman, HZL, explained during evidence that due to the lack of proper system in the office, the relevant files and papers in this regard could not be located and the correct position as stated above could not be explained to the audit when they visited the Undertaking's Office. The Committee need hardly emphasize that the office system should be streamlined and toned up so that all vital information regarding purchases and all other matters is readily available not only to the audit but also to the Management to enable them to take a correct decision without delay.
90	9.11—9.13	The Committee regret to note that the Management took nearly 5 months to process the tenders which had been invited in May, 1969 for the purchase of G.I. pipes and for which a minimum validity of only 30 days was asked for from the tenderers with the result that the validity of the offer made in June, 1969 by M/s. Bharat Steel Tubes, on whom the order was placed in November, 1969, had expired in July, 1969,

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		and the Company had to ultimately purchase the material at higher rates against fresh tenders from another firm and incur an extra expenditure of Rs. 45,299.
		The Committee fail to understand as to why a period of 30 days was stipulated in the tenders invited in May 1969 when normally according to the Management it takes 60 days to process the tenders.
		The Committee would like to stress that the Undertaking should streamline the system of analysing and finalising the tenders so as to ensure that it does not take the Management more than 60 days as now stiplated, to take final decision on tenders and costly delays do not take place hereafter.
91	9.28 9.29	The Committee note that the norms have now been laid down by Bureau of Public Enterprises for 'A', 'B' and 'C' categories of materials and during 1974-75 the inventory level was 2.89 months consumption as against a norm of 2.6 months consumption in the case of 'A' category, and 3.69 months consumption as against norm of 10 months consumption in the case of 'B' category and 3.68 months consumption as against norm of 4 months consumption. The Committee can hardly over emphasize the need to keep constant watch over the inventory levels of states, particularly 'A' and 'B' category, and they hope that there will be no let-up in the efforts to keep the inventory levels below the prescribed norms.
		The Committee find that while the maximum, minimum and ordering levels for 'A' category of stores which cover up nearly 80 per cent of the value of inventory have been fixed by the undertaking, the Management are finding it difficult to fix similar levels for 'B' and 'C' categories in view

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		of the changing production levels and expansion schemes going on in the various units. The Committee would suggest that, keeping in view the schedules of completion of the various expansion schemes in hand, the Management should draw up a time-bound programme to complete the work regarding fixation of maximum, minimum etc. for category 'B' and 'C' stores also as without fixing such levels, it will be rather difficult for the Management to keep a proper control over the inventory holdings.
92	9.52	The Committee would like that the losses as a result of shortage detected in the course of physical verification of raw materials and finished goods should be analysed to find out to what extent the shortages were due to handling and storage and to what extent to other causes. The Committee would like that suitable norms should be fixed for handling and storage losses and whenever such norms are exceeded the reasons therefore should be investigated and reported to the Board.
93	9.53 9.59	The Committee are informed that an excess of 1695.489 tonnes of indigenous zinc concentrates was observed in April, 1971 in the zinc smelter. The Committee are surprised that fresh verifications conducted in December, 1972 and in June, 1973, however, revealed a shortage of about 644 tonnes valuing Rs. 8.57 lakhs. When the matter was further investigated in December, 1973 an excess of about 66 tonnes of indigenous zinc concentrates and shortage of 453 tonnes of imported concentrates (valuing Rs. 5.35 lakhs) were found at the smelter. The Committee are surprised to note that these cases of shortage/excess were reported to the Board of Directors only in September, 1975.

(1)	(2)	(3)
		A shortage of about 4,000 tonnes of single super phosphate was observed in August, 1970, out of which shortage of 2,005 tonnes was written off. During the course of investigations of the remaining shortage and subsequent verification of stock of superphosphate, the shortage was finally established at 455 mt. in May, 1974. The Committee are led to the conclusion that the system of physical verification which gave varied results in the case of indigenous zinc concentrates and superphosphate and turned an excess of 1695 tonnes of zinc concentrates into a shortage of 644 tonnes could hardly be considered scientific. It has been stated that the system of physical verification has been streamlined from the last stock verification in 1974-75 whereby the samples are drawn more scientifically and moisture content analysed in the laboratory. The Committee recommend that the new system of stock verification, which is stated to be scientific should be kept under constant review and improved from time to time in the light of experience so that the Management can keep a proper check on stores, raw materials and finished products. The Committee also recommend that shortages noticed as a result of stock verification should be got examined independently and responsibility for shortages fixed and the results of examination placed before the Board, so that the Board may review the position and advise corrective measures to be followed.
94	9.64	The Committee would like that the fixed assets registers should be brought up-to-date in respect of all the units and verified without avoidable delay.

(1)	(2)	(3)
95	10.17 10.19	The Committee are surprised to note that the Officer on special duty (Mines Department) who was appointed in 1969-70 on the basis of his qualifications and mining experience, could not be usefully employed from February, 1972 onwards and continued to be there without any work assigned to him and the undertaking had been incurring an expenditure of Rs. 3,700 per month on the officer, *i.e.*, Rs 44,400 per annum from the aforesaid date. The Bureau of Public Enterprises have, however, stated that the cadre authority has no authorised posts under its administrative control either in Government or in Public Sector Enterprises. The Public Sector Enterprises had earlier been delegated powers to make all appointments below the Board level and below the level of General Managers of constituent units. Under the managerial personnel policy announced in August, 1974, further powers have been delegated and Government have retained the prerogative of appointment only at the Board's level. Government should have considered the question of placement of officers of the IMP like the one in the present case in finalising the managerial personnel policy for public undertakings and announcing it in August, 1974. The Bureau have stated that it has since been decided that the officer might be accommodated for some time in the BPE against a post of Deputy Adviser (Production) and this would be, a temporary arrangement. The Committee fail to understand if the officer's services had not been useful because of other reasons why suitable action could not be taken against him under the Rules. The Committee recommend that the matter should be examined in depth in order to review the entire procedure and authority of Government/public undertakings in regard to appoint-

(1)	(2)	(3)
		ments and termination of services of officers when these are no longer required, so as to avoid recurrence of such cases. The Committee would like that the whole matter regarding the appointment of the officers as well as his continuance at the Delhi Office of HZL without any work thereby causing avoidable expenditure of about Rs. 1.8 lakhs should be investigated and responsibility fixed and lessons learnt for future. The Committee would like to be informed of the action taken in the matter.
96	10.20	The Committee are informed that the question of abolition of Industrial Management Pool is presently under the consideration of Government. The Committee urge that in taking decision it should be ensured that the services of officers already in the Industrial Management Pool are put to best use in public interest.
97	11.11 11.12	The Committee find that a long term loan was granted by Government to HZL for the implementation of the integrated scheme including the mill and the Smelter. The Committee regret to observe that in the absence of the clear decision regarding the date of commencement of production the Management had been reckoning the period from the date of commercial production and delaying the repayment of loan instalments with the result that the financial burden on the company had been increasing from time to time and the balance of overdue instalments as on 31st March, 1975 amounted to Rs. 82 lakhs and the penal interest to about Rs. 6 lakhs. While it may be logical to reckon the period for repayment of loan from the date of commercial production, the Committee

(1)	(2)	(3)
		feel that date of commencement of commercial production is a concept which will be varying and disputable and according to the discretion of Management. The Committee therefore recommend that the terms and the conditions of loan should clearly stipulate the date of commencement of repayment of loan and interest so that there is no ambiguity in this regard. In their opinion this will also enable the Management to gear its machinery, cut short delays in gestation period and accelerate generation of resources. The Committee would like that Government, in its turn, should take positive action to review the position of outstanding loans and initiate measures for prompt realisation of the instalments of loans and interest due.
98	11.17 11.18	The Committee regret to note that the Management did not take any action on the note circulated by Government in May, 1969 *inter alia* indicating the main functions and responsibilities of the Financial Adviser drawn up on the basis of 15th Report (1968) on Financial Management in Public Undertakings and asking the Public Undertakings to adopt the same with such alternatives, adaption as might be necessary. The Committee urge that the matter should be processed without delay and placed before the Board and the function/responsibilities and powers of the Financial Adviser should be clearly and precisely laid down.
99	11.19	The Committee would also like that the BPE should not rest content with mere circulation of the instructions/guidelines but should review the implementation thereof and take prompt action so as to bring any information in this regard promptly to the notice of the administrative Ministries concerned.

(1)	(2)	(3)
100	11.24 11.25	The Committee regret to note that though the company was formed in January, 1966, it was only after eight years that an accounting manual laying down the detailed procedure for completion and maintenance of accounts has been introduced with the result that no uniform accounting procedure could be followed in the various units of the company. The Committee also note that a full-fledged internal audit system was introduced from July 1973 and the Internal Audit Manual was finalised in October, 1975. The Committee would like to draw attention to their recommendations in Paras 204 to 207 of their 15th Report (1968) and reiterate that the Internal Audit Wing should function as an effective tool of financial control and its functions should include a critical review of the systems, procedures and operations as a whole. They need hardly point out that its reports should receive serious considerations at all levels and a report of the points together with the action thereon should be placed before the Board of Directors from time to time.
101	11.32	The Committee would, like that the Ministry/Undertaking should keep a strict watch on the capital cost of the various projects which are under way, complete the projects expeditiously and commission them without delay.
102	11.33	The Committee would suggest that the undertaking should right from the beginning, ensure that there is no over-staffing in any project and over heads are kept to the minimum.
103	11.34	The Committee would recommend that there should be a built in accent on productivity in the wage structure to subserve the larger public interest.
104	11.35	The Committee would stress that strict financial control should be exercised on all the

(1)	(2)	(3)
		activities of the undertaking in the various units. The Corporation should introduce the system of management accountancy to assist the Management and the Board to take right decisions.
105	11.36	The Committee would like the Government's representatives on the Board to pay attention to the afore-mentioned aspects more particularly to the necessity for ensuring that the expenditure on the projects under implementation does not get too inflated as to militate against the viability of the project.
106	11.37	The Committee note that after incurring losses during initial years of working, the undertaking turned the corner and made profits (before tax) amounting to over Rs. 42 lakhs, Rs. 504 lakhs and Rs. 893 lakhs during the years 1972-73, 1973-74 and 1974-75 respectively. They find that the ruling price of zinc has been increased from time to time from Rs. 4090 per tonne in 1972-73 to Rs. 13710 per tonne from 1st January, 1974, and the additional sales revenue earned from increase in price during 1973-74 as compared to that prevailing in 1972-73 amounted to Rs. 5.46 crores and this contributed to substantial improvement in the working results of the company. The Committee have already pointed out that the cost of mining operations have been increasing and cost of mine ore, recovery efficiency etc., are important factors which influence the cost of production of end products. The Committee have already given recommendations in this regard. They would like to reiterate that the undertaking should introduce scientific system of costing all its projects.

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